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FROM THE EDITOR

Welcome to the 2016 edition of the *Photo Life Buyers' Guide!*

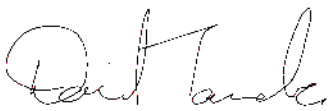
Change is afoot, my friends, pulling photography every which way. Ever since digital entered the mainstream of photography 15 or so years ago, the mechanical and optical aspects of product development have been bouncing off the wall of digital possibilities. Each year the new brew of possibilities becomes more interesting, often surprising.

Some people call this the age of programmable photography and it's beginning to have some substance. Take firmware upgrades, for example. An alien concept in the age of mechanical gear, today we often look at them as annoying bug fixes—things that need correcting because the manufacturer didn't get it right the first time. That's true, but we're moving to another phase too, where firmware upgrading becomes as significant as any change to hardware.

One Olympus announcement this fall was only about firmware, but there's no doubt it resulted in tangible improvements to the EM-1 and EM-5 Mk II cameras. Sigma introduced the USB dock a few years—a device that lets the photographer upgrade the lens when new firmware is released, but also to tune the lens's performance through software. Software lens correction itself is becoming mainstream. You often read lens reports where the reviewer might comment about this or that kind of flaw, but dismissing it as a major problem because it's easy to correct in camera or in post.

At the design and engineering level, programming has allowed camera makers to break through barriers imposed by hardware. Pentax introduced a feature called Pixel-Shift Resolution in its K-3 II where the sensor is moved in a precise four-step pattern so that each pixel site can record all three RGB hues. Olympus uses a similar kind of precise sensor positioning to net a higher resolution image from the sensor.

In this year's roundup the products are still mostly recognizable as the kinds of tools previous generations of photographers used. The digital and programmable content may be higher, but often hidden away. And that's mostly a good thing, because we don't necessarily care about the nuts and bolts details as long as our enjoyment of photography is enhanced. We hope you find plenty to enjoy in this year's guide.



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Jamie L., Henry's Toronto

DSLR CAMERAS
THE GO-TO CHOICE FOR ENTHUSIASTS KEEPS ITS EDGE

By David Tanaka

SLR enthusiasts have a lot of reasons to cheer their favourite platform. It's a mature architecture with decades of refinement. It's been field tested in the toughest conditions known to photographers. Manufacturers put their best and newest technologies into the top-end SLRs. Beyond the cameras themselves, the SLR has a huge supporting cast of accessories that no other camera system can surpass. However, SLRs don't form a single niche. In the lower tiers competition gets fierce. With all the great advances in camera technology, you can easily downsize or downgrade and still have a device that takes really good photographs.

NOT A SINGULAR BREED

The digital-SLR market can be sliced in a number of ways. One is by sensor dimensions. The so-called full-frame SLRs have sensors that are the same (or nearly the same) dimensions as the 35-mm film frame: 36 mm wide by 24 mm high. APS SLRs have sensors that are roughly the same dimensions as the APS-C film frame: 25.1 x 16.7 mm, but there is a lot of variability in dimensions from one manufacturer to another, and even between models of a single camera maker.

If you've never used 35-mm film before you may wonder: so what? It's a legacy problem. Sensors in the first generations of digital SLRs were of smaller dimensions than a 35-mm film frame, so photographers transitioning from film had to relearn relationships between focal length and framing. It created an awkward narrative with terms like "focal-length equivalent" and "crop factor" that's still with us today. Full-frame digital SLRs re-establish the relationships that were part of basic training for some photographers.

Every manufacturer makes more SLR models with APS-size sensors. Another way to organize the field is according to the intended user. *Photo Life,* like other members of the Technical Image Press Association uses four categories: entry-level, advanced, expert and professional. While not a perfect system, it's a generally useful index that takes into consideration a variety of factors such as price, size and weight, feature breadth and depth, ruggedness, durability, weather resistance and performance.

Cameras with APS-size sensors mostly cover the spread of entry-level, advanced and expert, while full-frame cameras mostly span the expert through professional categories. Full-frame models are more expensive, partly because they are designed for the advanced end of the model continuum, but also because full-frame sensors and other components are more costly. Thus you may find a company's APS model well matched in features and image quality to a full-frame offering, even outperforming it in some ways, but with a lower price tag.

Canon and Nikon, the No.1 and No.2 SLR makers, have held 90+ percent of the market for years, with Pentax and Sony picking up the rest. When you are fighting such goliaths, you need something to make you more competitive. With Pentax you can often find higher-end features like weatherproof seals and exotic metals for body construction showing up earlier in lower-end models.

Sony has taken a different approach to the viewfinder system in its Alpha SLT line using a pellicle mirror system and an electronic viewfinder instead of the traditional SLR pentaprism system. It offers some benefits such as faster burst-shooting rates and access to fast phase-detect autofocus in conjunction with a live-view electronic viewfinder.

Making apple-to-apple comparisons between manufacturers is difficult for a number of reasons. Even studying a single manufacturer, it's often hard to spot big differences between adjacent models in the line up, or whether the differences are meaningful to your interests. Following are some performance indicators that might make a difference in your deliberations.

AUTOFOCUS SYSTEM

As you move up from entry-level to advanced, the autofocus system usually becomes more sophisticated. The number of focus points increases, as does the number of cross-type points, which work well whether the camera is in portrait or landscape orientation. The number of selectable focus points for single-point AF may increase too, which means you have more specific areas in the frame you can target as the focus point. But even entry-level models may implement sophisticated focusing methods like face detection and tracking.

SLR focusing used to be exclusively based on phase-detection technology in the mirror system, which is fast and works well in low light. When SLRs capture video on-sensor contrast-detect AF is used, which is very precise but not as effective in low light. Both types of AF are now common on SLRs, and improvements to on-sensor focusing show up as improvements in live-view focusing for both stills and video. Canon's Dual Pixel CMOS AF moves the technology forward with on-sensor phase detection, and as previously mentioned, Sony's SLT design achieves a similar benefit with different technology.

AUTO-EXPOSURE SYSTEM

SLRs use a separate RGB sensor for exposure calculation but a lot of that information is being used for other sophisticated features such as face recognition or scene recognition. Scene shooting modes or styles allow the photographer to pick descriptive names, such as sunrise/sunset, fast moving

Making apple-to-apple comparisons between manufacturers is difficult for a number of reasons. Even studying a single manufacturer, it's often hard to spot big differences between adjacent models in the line up, or whether the differences are meaningful to your interests.

objects, backlit subjects, fireworks, night photography, indoor photography, etc. Entry-level to mid-level SLRs in particular offer a lot of these conveniently named settings.

MAXIMUM FRAME RATE

This is a rough performance indicator from a number of different factors working together: the robustness of the mechanicals, data transmission and card-writing speed, performance of the image processer and sensor resolution.

VIEWFINDER SYSTEM

Viewfinder coverage: expressed as a percentage, this indicates how closely the viewfinder frame comes to the frame actually captured by image sensor. As you move up to more advanced cameras, 100 percent coverage becomes the norm.

LCD: most SLRs now use 3-inch or 3.2-inch (measured diagonally) rear screens. Camera companies veered from computer monitor practice and state resolution in "dots" instead of pixels. A pixel is a triad of red, green and blue. In computer speak a VGA monitor displays 640 x 480 = 307,200 pixels. In camera speak, that's 307,200 x 3 (red, green, blue) = 921,600 dots.

Some cameras have movable LCDs, either adjustable in a single plane (up-down) or fully articulated, and touch-sensitivity is also beginning to show up, which allows you to pick camera settings by touchscreen.

RAW FILE STRUCTURE

You may encounter 14-bit vs. 12-bit as well as uncompressed, lossy compressed or lossless compressed. By the numbers 12-bit data can define nearly 70 billion values while a 14-bit data can define four trillion values. Compression reduces file size. In lossless compression, all the captured data is retained; in lossy compression, some data is permanently discarded, which allows file size to be reduced more. Practically speaking, you may not be able to see any differences between a 12-bit and 14-bit raw files, uncompressed vs. lossless compressed except in the extremes of exposure conditions.

BODY CONSTRUCTION

Entry-level cameras use an impact-resistant material like a polycarbonate, which is very tough. As you move up to more performance-oriented models you find increasing use of materials like magnesium alloy for additional rigidity or magnesium alloy for the body and a separate chassis made of even stronger stainless steel. Likewise more advanced models include weather sealing on the port doors, seams and lens bayonet, which helps keep dust and moisture away from the internals. All SLRs now have a dust-reduction system that uses high-frequency vibration to keep the sensor free from debris that show as dark spots or lines in the image.

VIDEO

Full HD, 1920 x 1080 resolution, is now the norm but frame capture rates vary: 60p, 60i, 30p and 24p are typical. In 60p and 30p the camera records 60 (or 30) full 1920 x 1080 frames every second. With 60i the frame is divided into two fields of odd and even lines, recorded sequentially and then combined into 30 complete 1920 x 1080 frames every second. Recording in 60p requires a more robust system since you are working with twice the amount of data per second. The 24p imparts a film look to digital video. Advanced video features include an external stereo microphone jack, a headphone jack for monitoring sound, and the ability to send raw video to a separate video recording unit.

OTHER TECH CONTENT

Wi-Fi and NFC are built into a number of SLRs. Part of the Wi-Fi implementation is an accompanying smartphone or tablet app. This allows you to download images from the camera to the smart device, and then upload it to a social-media stream, or use the tablet as a larger live-view display to control camera functions. NFC (Near Field Communication) is used to simplify the Wi-Fi connection between camera and device. Wi-Fi can also be implemented using memory cards with built-in Wi-Fi from companies such as EyeFi, Toshiba, Transcend and Trek.

Some cameras have built-in GPS units and in some cases you can buy an external unit that communicates with the camera. The GPS unit writes longitude, latitude and altitude information into the metadata so it becomes a permanent part of the image data. It's especially handy for travel photography because it helps you keep track of where you took various photos.

FULL-FRAME CAMERAS

CANON EOS 5DS, 5DS R

Canon's response to Nikon's 36-megapixel D810 (image resolution 7360 x 4912) is the 50.6-megapixel EOS 5DS (image resolution 8688 x 5792 pixels), which decisively resets the envy gauge in Canon's favour. As you would hope, the 5DS is packed with the latest Canon tech, including dual Digic image processors and a novel Intelligent Viewfinder II that overlays more useful information onto the optical viewfinder. The camera has 1.3x and 1.6x reduced resolution modes, plus the ability to change aspect ratios from the native 3:2 to 1:1, 4:3 and 16:9. It has a built-in intervalometer for time-lapse work without the need for a separate remote cable. A variation called the 5DS R cancels (Canon's term) the effect of the low-pass filter for improved recording of fine detail.

VIEWFINDER COVERAGE: **100%** // LCD: **3.2 IN., 1.04 M DOTS** // SENSOR: **36 X 24 MM, 50.6 MP**
AF: **61 POINTS, 41 CROSS TYPE** // ISO RANGE: **100–6400 EXT TO 50, 12,800** // SHUTTER SPEED: 1/8000-30 S + B
FLASH X-SYNC: **1/200 S** // BURST RATE: **5 FPS** // DIMENSIONS: **152 X 116.4 X 76.4 MM** // WEIGHT: **930 G**

$4099, 5DS (LIST) **CANON.CA**

CANON EOS 6D

Canon calls the EOS 6D the full-frame SLR for everyone. It strikes a good balance of performance, size and cost and includes built-in Wi-Fi as well as GPS, which are not mainstream features but bound to be appreciated by some. In some respects the more-recently introduced small-sensor EOS 7D Mark II outperforms it, but if a full-frame camera is what you want, this is a well-balanced performer. Rumours are that a Mark II version is in the wings.

VIEWFINDER COVERAGE: **97%** // LCD: **3 IN., 1.04 M DOTS** // SENSOR: **35.8 X 23.9 MM, 20.2-MP**
AF: **11 POINTS, 1 CROSS TYPE** // ISO RANGE: **100–25600 EXT TO 40, 51,200, 102,400**
SHUTTER SPEED: **1/4000-30 S + B** // FLASH X-SYNC: **1/180 S** // BURST RATE: **4.5 FPS**
DIMENSIONS: **144 X 110 X 71.2 MM** // WEIGHT: **755 G**

$1900 (STREET) **CANON.CA**

NIKON D810

Nikon has a number of full-frame models, the D810 being the high-resolution model. Like the D800 it replaces, it uses a 36.3-megapixel sensor but unlike the previous variations based on optical low-pass filter or not (D800/D800E) there's just one D810, with no optical low-pass filter. The D810 offers resolution to spare, high levels of performance and a rugged build, but in a package that doesn't seem overly big or heavy for what you're getting. A special-purpose astronomy model called the D810A has special red spectrum (h-alpha) filter tuning to allow the camera to better capture the reddish glow of deep space objects.

VIEWFINDER COVERAGE: **100%** // LCD: **3.2 IN., 1.23 M DOTS** // SENSOR: **35.9 X 24 MM, 36.3 MP**
AF: **51 POINTS, CROSS TYPE** // ISO RANGE: **64–12,800 EXT TO 34, 25,600, 51,200** // SHUTTER SPEED: **1/8000-30 S + B**
FLASH X-SYNC: **1/250 S** // BURST RATE: **5 FPS** // DIMENSIONS: **146 X 123 X 81.5 MM** // WEIGHT: **880 G**

$3599 (LIST) **NIKON.CA**

NIKON D750

For those that think that the 36-megapixel D810 is overkill, the 24-megapixel D750 may be the Goldilocks choice. It doesn't have the 10-pin accessory port that's a signature feature of the company's pro-oriented cameras, and a maximum shutter speed that's one stop slower than the D810, but on the positive side of the ledger, the D750 has a tilting LCD, built-in Wi-Fi and a slightly faster burst rate. It's also a bit smaller and lighter, and a thousand dollars less expensive.

VIEWFINDER COVERAGE: **100%** // LCD: **3.2 IN., 1.23 M DOTS, TILTING** // SENSOR: **35.9 X 24 MM, 24.3 MP**
AF: **51 POINTS, 15 CROSS TYPE** // ISO RANGE: **100–12,800 EXT TO 50, 25,600, 51,200** // SHUTTER SPEED: **1/4000-30 S + B**
FLASH X-SYNC: **1/200 S** // BURST RATE: **6.5 FPS** // DIMENSIONS: **140.5 X 113 X 78 MM** // WEIGHT: **750 G**

$2549 (LIST) **NIKON.CA**

BENCHMARK II

SONY α7RII

Since there's never been another camera like it, the Sony a7R II warrants a benchmark of its own.

And what a commanding benchmark it is! Because for anyone who's ever dreamed of owning one camera that captures both professional stills and cinematic video, your dream camera is here.

In one hand, the Sony a7R II is an impressive 42.4-megapixel full-frame stills camera, delivering medium format-like resolution. In the other hand, it's a camera that feels right at home on a major movie set, capable of recording immaculate 4K video internally.

And as if that's not enough, Sony engineers equipped the a7R II with 5-axis stabilization, a super-fast 399-point autofocus system, a rugged magnesium alloy weatherproof casing, a brilliant OLED viewfinder, built-in WiFi, a Silent Mode for stealth shooting, and much more.

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SONY A99

The A99 is marginally bigger and heavier than the A77 II but the main difference is that the A99 uses a full-frame sensor (with a slightly higher resolution). At six frames per second, the A99 can't match the A77 II, but in other respects, these are a close match. The main decision is full frame or not. We were expecting an A99 II to be announced in late 2015, but at press time, there was no official confirmation.

VIEWFINDER COVERAGE: **100%** // LCD: **3 IN., 1.3 M DOTS, TILT-SWIVEL** // SENSOR: **35.8 X 23.9 MM, 24.3 MP**
AF: **79 POINTS, 15 CROSS TYPE** // ISO RANGE: **100–12,800 EXT TO 50, 25,600** // SHUTTER SPEED: **1/8000-30 S + B**
FLASH X-SYNC: **1/250 S** // BURST RATE: **12 FPS** // DIMENSIONS: **147 X 111.2 X 78.4 MM**
WEIGHT: **733 G WITH BATTERY AND CARD**

$2199 (LIST) **SONYSTYLE.CA**

APS-SENSOR SLRS

CANON 7D MK II

The EOS 7D Mk II distinguishes itself in a number of ways, including fast burst rate of up to 10 frames per second, dual-Digic 6 image processors and a 65-point AF system that are all cross type. The 7D Mk II uses Canon's Dual-Pixel CMOS AF system, which implements phase-detect AF on the sensor and offers more responsive live-view focusing. Canon compares it to camcorder focusing in terms of subject acquisition and tracking. Other performance features include dual card slots (CF and SD), and an ISO range of 100-16,000 that extends to ISO 51,200. The 7D Mark II also has built-in GPS.

VIEWFINDER COVERAGE: **100%** // LCD: **3 IN., 1.04 M DOTS** // SENSOR: **22.4 X 15 MM, 20.2 MP** // AF: **65 POINTS, CROSS TYPE** // ISO RANGE: **100–16,000 EXT TO 50, 25,600, 51,200** // SHUTTER SPEED: **1/8000-30 S + B**
FLASH X-SYNC: **1/250 S** // BURST RATE: **10 FPS** // DIMENSIONS: **146.6 X 112.4 X 78.2 MM** // WEIGHT: **910 G**

$1899 (LIST) **CANON.CA**

CANON EOS 70D

This EOS distinguishes itself with built-in Wi-Fi and tilting-swivelling LCD. Like many recent EOS models, the 70D incorporates the Dual Pixel CMOS AF that improves the speed and accuracy of live-view focusing, which boosts the usefulness of the articulated LCD as a composing screen when you need or want to hold the camera somewhere other than eye level. Burst mode is a sparkling 7 frames per second, and the 70D also has impressive high ISO of up to 25600 in extended mode.

VIEWFINDER COVERAGE: **98%** // LCD: **3 IN., 1.04 M DOTS** // SENSOR: **22.5 X 15 MM, 20.2 MP**
AF: **19 POINTS, CROSS TYPE** // ISO RANGE: **100–12800 EXT TO 25,600** // SHUTTER SPEED: **1/8000-30 S + B**
FLASH X-SYNC: **1/250 S** // BURST RATE: **7 FPS** // DIMENSIONS: **139 X 104.3 X 78.5 MM** // WEIGHT: **755 G**

$1300 (STREET) **CANON.CA**

CANON EOS REBEL T6S AND T6I

EOS Rebels are one of Canon's most successful lines. The T6s and T6i have very similar specifications but with a few noteworthy differences. The T6s has a second control wheel that sits around the thumb pad on the back, and a secondary information display on the top deck (the mode dial moves to the left of the viewfinder to make room for it). The T6s also has a high dynamic-range video mode that the T6i does not. Both have 24.2-megapixel sensors, hybrid CMOS AF, 3-inch swivel-tilt touch-enabled LCDs and built-in Wi-Fi.

VIEWFINDER COVERAGE: **95%** // LCD: **3 IN., 1.04 M DOTS, SWIVEL-TILT** // SENSOR: **22.3 X 14.9 MM, 24.2 MP**
AF: **19 POINTS, CROSS TYPE** // ISO RANGE: **100–64,000 EXT TO 128,000** // SHUTTER SPEED: **1/4000-30 S + B**
FLASH X-SYNC: **1/200 S** // BURST RATE: **5 FPS** // DIMENSIONS: **131.9 X 100.9 X 77.8 MM**
WEIGHT: **520 G BODY ONLY**

$929, T6S; **$849,** T6I (LIST) **CANON.CA**

CANON EOS SL1

The EOS SL1'S small size and weight put it in direct competition with CSC. Canon positions it as the first camera you might consider after a smartphone, so it includes familiar features like touchscreen control and live-view focusing, as well as the hybrid CMOS AF II system. As part of the EOS family, the SL1 is a gateway to Canon's extensive SLR lens and accessory catalogue.

VIEWFINDER COVERAGE: **95%** // LCD: **3 IN., 1.04 M DOTS, TOUCH** // SENSOR: **22.3 X 14.9 MM, 18 MP**
AF: **9 POINTS, 1 CROSS TYPE** // ISO RANGE: **100–12,800 EXT TO 25,600** // SHUTTER SPEED: **1/4000-30 S + B**
FLASH X-SYNC: **1/200 S** // BURST RATE: **4 FPS** // DIMENSIONS: **116.8 X 90.7 X 69.4 MM**
WEIGHT: **520 G BODY ONLY**

$779, WITH 18-55 MM LENS (LIST) **CANON.CA**

NIKON D7200

The D7200 sits at the top of Nikon's DX (APS-size sensor) product line (not counting the D300s, which hasn't been updated since its release in 2009). If you are trying to decide between Full Frame and APS, the D7200 and the D750 make an interesting comparison. Apart from the difference in sensor dimensions, they are closely matched, with very similar specifications. The D7200 is slightly smaller and lighter and costs $1,000 less. The D7200's maximum ISO and shutter speed are both one stop better than the D750, but the D750 has a tilting LCD that the D7200 lacks.

VIEWFINDER COVERAGE: **100%** // LCD: **3.2 IN., 1.23 M DOTS** // SENSOR: **23.5 X 15 MM, 24.2 MP**
AF: **51 POINTS, 15 CROSS TYPE** // ISO RANGE: **100–25,600 EXT TO 51,200, 102,400** // SHUTTER SPEED: **1/8000-30 S + B**
FLASH X-SYNC: **1/250 S** // BURST RATE: **6 FPS** // DIMENSIONS: **135.5 X 106.5 X 76 MM** // WEIGHT: **675 G**

$1399 (LIST) **NIKON.CA**

NIKON D5500

Nikon's DX SLR line-up has three divisions and the D5500 sits in the middle. Size and weight are nearly the same as the lower D3300, but you get more of the advanced technology content found in the D7200. The D5500 is also the only one of the three with a tilting and touch sensitive LCD. Choosing the D5500 over the D7200 you give up a bit in maximum shutter speed, burst mode, AF focus points, viewfinder coverage and LCD resolution. You get 12-bit but not 14-bit Raw and you have one SD card slot instead of two.

VIEWFINDER COVERAGE: **95%** // LCD: **3.2 IN., 1.04 M DOTS** // SENSOR: **23.5 X 15 MM, 24.2 MP** // AF: **39 POINTS**
ISO RANGE: **100–25,600** // SHUTTER SPEED: **1/4000-30 S + B** // FLASH X-SYNC: **1/200 S** // BURST RATE: **5 FPS**
DIMENSIONS: **124 X 97 X 70 MM** // WEIGHT: **420 G**

$869 (LIST) **NIKON.CA**

NIKON D3300

Even Nikon's entry-level D3300 has a 24-megapixel sensor, and includes some convenience features to make people moving from camera phones and point-and-shoot cameras more at ease. Through an optional Wi-Fi module you can bring the D3300 and its photos to your social media playground. An optional GPS module is also available. It has a respectable burst rate, is small and light and is one of the most affordable SLRs.

VIEWFINDER COVERAGE: **95%** // LCD: **3 IN., 921K DOTS** // SENSOR: **23.5 X 15.6 MM, 24.2 MP** // AF: **11 POINTS**
ISO RANGE: **100–1280 EXT TO 25,600** // SHUTTER SPEED: **1/4000-30 S + B** // FLASH X-SYNC: **1/200 S**
BURST RATE: **5 FPS** // DIMENSIONS: **124 X 98 X 73.3 MM** // WEIGHT: **410 G**

$499 (LIST) **NIKON.CA**

PENTAX K3-II

The K3-II is Pentax's top APS model; an impressive machine with several innovative features. An enhanced capture mode called Pixel Shift Resolution moves the sensor in four precise steps during exposure, allowing each pixel to record data for all three RGB colours for better colour accuracy. The K3-II has TvAv setting in addition to Tv (shutter) and Av (aperture) priority on the mode dial for variable ISO. Its built-in GPS is central to another novel feature called Astrotracer, which can track stars for up to five minutes—normally impossible to do without a specialized astronomical tracking head. Its body is magnesium alloy over a steel chassis that has been weather sealed.

VIEWFINDER COVERAGE: **100%** // LCD: **3.2 IN., 1.04 M DOTS** // SENSOR: **23.5 X 15.6 MM, 24.4 MP**
AF: **27 POINTS, 25 CROSS TYPE** // ISO RANGE: **100–51,200** // SHUTTER SPEED: **1/8000-30 S + B** // FLASH X-SYNC: **1/180 S**
BURST RATE: **8.3 FPS** // DIMENSIONS: **131.5 X 102.5 X 77.5 MM** // WEIGHT: **785 G WITH BATTERY AND CARD**

$1399 (LIST) **RICOH-IMAGING.CA**

PENTAX K-50

The K-50 is out to prove that you don't have to spend a ton of dough to get a decent SLR. It is weather sealed and cold rated down to -10 °C, has high-ISO settings up to 51,200 and a burst rate of six frames per second. It also includes in-body image stabilization and the viewfinder presents a 100 percent view of the frame. Unusual is the battery holder that lets you use rechargeable AA cells instead of the standard Lithium Ion. At 16.3 megapixels, the pixel count is a bit behind the competition, but 13 x 19 prints are an easy reach.

VIEWFINDER COVERAGE: **100%** // LCD: **3 IN., 460K PIXELS** • SENSOR: **23.7 X 15.7 MM, 16.3 MP** • AF: **11 POINTS, 9 CROSS TYPE** • ISO RANGE: **100–51,200** // SHUTTER SPEED: **1/6000-30 S + B** // FLASH X-SYNC: **1/180 S**
BURST RATE: **6 FPS** // DIMENSIONS: **129 X 96.5 X 70 MM** // WEIGHT: **650 G WITH BATTERY AND CARD**

$529, WITH 18-55 MM ZOOM; **$459,** BODY ONLY **RICOH-IMAGING.CA**

PENTAX K-S2

When you do battle with giants like Canon and Nikon you have to dangle a bit more in front of potential customers, and Pentax's K-S2 does just that. It is weather sealed, a feature normally found only on higher-end machines. It has a tilting LCD and onboard Wi-Fi with NFC, in-camera image stabilization. The K-S2 also maximizes detail from its 20-megapixel sensor by dispensing with the normal Anti-Aliasing filter. It's being sold in kit form with a retractable 18-50 mm zoom lens. Plus the K-S2 is available in a rainbow of body colours. The model is a 2015 TIPA award winner.

VIEWFINDER COVERAGE: **100%** // LCD: **3 IN., 921K DOTS** // SENSOR: **23.5 X 15.6 MM, 20.4 MP**
AF: **11 POINTS, 9 CROSS TYPE** // ISO RANGE: **100–51,200** // SHUTTER SPEED: **1/6000-30 S + B** // FLASH X-SYNC: **1/180 S**
BURST RATE: **5.4 FPS** // DIMENSIONS: **122 X 91 X 72.5 MM** // WEIGHT: **678 G WITH BATTERY AND CARD**

$899, WITH 18-50 MM LENS (LIST) **RICOH-IMAGING.CA**

SONY A77 II

Although the buzz these days is around Sony's FE-mount A7 line, the A-mount Alpha SLT platform is chock full of advanced technology too. The SLT viewing system replaces the pentaprism with a simpler pellicle mirror, which allows fast contrast-detect AF with high-res 2.4 million-dot electronic viewfinder. The A77 II is quick—up to 12 frames per second burst mode with AF. This model includes in-camera image stabilization, Wi-Fi with NFC and a separate mic jack for video. The A-mount goes back to the days of Minolta/Konica before it was acquired by Sony, so there is a lot of decent legacy glass on top of the good assortment of current lenses in Sony's catalogue.

VIEWFINDER COVERAGE: **100%** • LCD: **3 IN., 1.3 M DOTS, TILT-SWIVEL** • SENSOR: **23.5 X 15.6 MM, 23.3 MP**
AF: **79 POINTS, 15 CROSS TYPE** • ISO RANGE: **100–12,800 EXT TO 50, 25,600** • SHUTTER SPEED: **1/8000-30 S + B**
FLASH X-SYNC: **1/250 S** • BURST RATE: **12 FPS** • DIMENSIONS: **142.6 X 104.2 X 80.9 MM**
WEIGHT: **726 G WITH BATTERY AND CARD**

$1199 (LIST) **SONYSTYLE.CA**

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DSLR LENSES
CAPTURING YOUR VISION TAKES THE RIGHT GLASS

By David Tanaka

Every SLR platform has an extensive catalogue of lenses; nevertheless lenses are regularly introduced in every category and at all price levels. New lenses advance the technology in areas such as lens coatings, low-dispersion glass, design improvements, differences in materials and construction, and newer generations of mechanical systems like autofocus or image stabilization. Most manufacturers have adopted an AF system that allows instant manual overrides, and many new lenses now have near-silent autofocus and aperture control. Pentax and Sony implement image stabilization in the camera body, while Canon and Nikon implement IS in the lens (but not in all lenses).

Because camera makers use the same lens mount for their full-frame and smaller sensor SLRs, there's little to stop you from mounting any lens on any body within the system. Lenses designed for bigger sensors will perform equally well or maybe a bit better with smaller sensors, but lenses designed for smaller sensors will vignette when used on a camera with a bigger sensor. To note this difference, Canon uses EF for lenses suitable for all its cameras, and EF-S for those designed for the smaller-sensor models. Nikon uses the designations FX (full frame) and DX (APS), and Pentax has FA (FF) and DA (APS), Sony adds DT to indicate smaller sensor design. Independent lens makers have similar codes for their lenses; Sigma uses DG and DC, while Tokina follows Nikon's FX/DX system. Following are lenses introduced in the past year.

WIDE-ANGLE LENSES

These lenses will cram a wide arc —70-120 degrees or more—into the frame, exaggerating depth perspective in the process. Long a staple for landscape photographers, wide zooms are finding fans everywhere, even among portraitists. For full-frame (FF) cameras focal lengths shorter than 35 mm are the conventional definition of wide angle; for APS sensors it's focal lengths shorter than 24 mm.

CANON EF 11-24 MM F/4L USM

For Canon users in the know, you don't need to say anything beyond L-series. This is the company's no-compromise lens line. In this case, it is also the widest full-frame zoom on the planet. The 11-mm setting is usually the widest focal length for APS cameras, but this works on full-frame Canon SLRs taking in an impressive 126 degrees.

COVERAGE, DEGREES (FF): **126-84** // ELEMENTS, GROUPS: **16, 11** // CLOSEST FOCUS: **28 CM**
FILTER SIZE: **REAR INSERT** // DIAMETER X LENGTH: **108 X 132 MM** // WEIGHT: **1180 G**

$3500 (STREET) **CANON.CA**

SIGMA 24-35 MM F/2 DG HSM ART

This lens is being hailed as a triumph of design and engineering. With an f/2 maximum aperture this wide-angle zoom occupies unique ground. Sigma's "Art" designation means it's part of the company's premium line. This lens is available in Canon, Nikon and Sigma mounts.

COVERAGE, DEGREES (FF): **84-63** // ELEMENTS, GROUPS: **18, 13** // CLOSEST FOCUS: **28 CM**
FILTER SIZE: **82 MM** // DIAMETER X LENGTH: **88 X 123 MM** // WEIGHT: **940 G**

$1250 (STREET) **SIGMACANADA.CA**

SONY ZEISS VARIO-SONNAR T* 16-35 MM F/2.8 ZA SSM II

As a premium offering for Sony's A-mount cameras, this lens bears the famous Zeiss name tag, which means advanced technologies like the Zeiss T-Star multi-layer anti-reflection coatings to improve light transmission and colour. This lens also has seals to keep out dust and moisture.

COVERAGE, DEGREES (FF): **107-63** // ELEMENTS, GROUPS: **17, 13** // CLOSEST FOCUS: **28 CM** // FILTER SIZE: **77 MM**
DIAMETER X LENGTH: **83 X 114 MM** // WEIGHT: **873 G**

$2650 (STREET) **SONYSTYLE.CA**

TOKINA ATX 11-20 MM F/2.8 PRO DX

This is the third ultra-wide zoom model in the company's premium AT-X Pro DX line designed for APS SLRs. This model is available in Nikon and Canon mounts. It includes three SD low-dispersion glass elements and three aspheric lens elements, and a manual override-type AF system Tokina calls One-Touch Focus Clutch.

COVERAGE, DEGREES (APS): **104-72** // ELEMENTS, GROUPS: **14, 12** // CLOSEST FOCUS: **28 CM** // FILTER SIZE: **82 MM**
DIAMETER X LENGTH: **89 X 92 MM** // WEIGHT: **560 G**

$750 (STREET) **DAYMEN.CA**

STANDARD/CONVENIENCE ZOOMS

The standard zoom covers a useful range of focal lengths from moderate wide angle to moderate telephoto. The kit zoom supplied with many cameras falls into this category but so do the not-so-standard premium lenses like the 24-70 mm f/2.8 so popular among enthusiasts and professionals. Think of convenience zooms as a normal zoom with more reach in the telephoto end.

CANON EF 24-105 MM F/3.5-5.6 IS STM

The STM stands for screw-type stepping motor, and Canon says this is the first full-frame standard zoom to have this advanced feature. The benefit is smoother and near silent AF. The lens is image-stabilized, and includes aspheric and low-dispersion elements. The 105 mm range is considered by many to be an ideal focal length for portraits.

COVERAGE, DEGREES (FF): **84-23** // ELEMENTS, GROUPS: **17, 13** // CLOSEST FOCUS: **40 CM** // FILTER SIZE: **77 MM**
DIAMETER X LENGTH: **83.3 X 104 MM** // WEIGHT: **525 G**

$700 (STREET) **CANON.CA**

NIKON AF-S DX NIKKOR 16-80 MM F/2.8-4E ED VR

This covers similar range as one of Nikon's better DX zooms, the 16-85 mm. It has 5 mm less on the telephoto end but wider maximum apertures. This lens is image stabilized and includes Nikon's Nano Crystal Coat as well as smudge-resistant fluorine. The DX designation means this works on Nikon's APS SLRs.

COVERAGE, DEGREES (APS): **83-20** // ELEMENTS, GROUPS: **17, 13** // CLOSEST FOCUS: **35 CM** // FILTER SIZE: **72 MM**
DIAMETER X LENGTH: **80 X 85.5 MM** // WEIGHT: **480 G**

$1350 (STREET) **NIKON.CA**

NIKON AF-S NIKKOR 24-70 MM F/2.8E ED VR

Nikon's previous 24-70 mm f/2.8 is a tough act to follow, so what does the f/2.8E bring to the table? VR image stabilization is perhaps the most obvious change, but it's also the first Nikon lens to incorporate an aspherical ED glass element, says the company. It also uses the company's Nano Crystal Coat to reduce ghosting, along with a smudge resisting fluorine coating on the outer surfaces.

COVERAGE, DEGREES (FF): **84-34** // ELEMENTS, GROUPS: **20, 16** // CLOSEST FOCUS: **41 CM AT 70 MM**
FILTER SIZE: **82 MM** // DIAMETER X LENGTH: **88 X 154.5 MM** // WEIGHT: **1070 G**

$2799 (LIST) **NIKON.CA**

PENTAX DA 18-50 MM F/4.5-5.6 DC WR RE

If you want a zoom lens but not a big honker, this retractable design is just 41 mm when parked and weighs just 160 grams. Despite that it carries the WR designation, meaning it has weatherproof seals. Other advanced features include ED and aspheric elements and AF with instant manual control.

COVERAGE, DEGREES (APS): **76-31.5** // ELEMENTS, GROUPS: **11, 8** // CLOSEST FOCUS: **30 CM** // FILTER SIZE: **58 MM**
DIAMETER X LENGTH: **71 X 41 MM** // WEIGHT: **158 G**

$330 (STREET) **RICOH-IMAGING.CA**

HD PENTAX DA 16-85 MM F/3.5-5.6 ED DC WR

This model bears the WR designation, with eight seals and a special water-repellent coating on the front lens surface. The DC indicates a DC AF motor that allows instant manual override. As an upgrade to a standard 18-55 mm kit zoom, this one will give you more wide angle and more telephoto.

COVERAGE, DEGREES (APS): **83-19** // ELEMENTS, GROUPS: **16, 12** // CLOSEST FOCUS: **28 CM** // FILTER SIZE: **72 MM**
DIAMETER X LENGTH: **78 X 94 MM** // WEIGHT: **488 G**

$780 (STREET) **RICOH-IMAGING.CA**

PENTAX D FA 24-70 MM F/2.8 ED SDM WR

To attract the enthusiast every SLR system needs a 24-70 mm f/2.8, and Pentax has delivered. The FA designation means this lens is designed for a full-frame K-mount camera so Pentax enthusiasts can take that as further indication the FF Pentax SLR is near. As you expect of a premium lens, this one has exotic elements and coatings, as well as extensive weather sealing.

COVERAGE, DEGREES (FF): **84-35** // ELEMENTS, GROUPS: **17, 12** // CLOSEST FOCUS: **38 CM** // FILTER SIZE: **82 MM**
DIAMETER X LENGTH: **88.5 X 109.5 MM** // WEIGHT: **787 G**

$1599 (LIST) **RICOH-IMAGING.CA**

SIGMA 18-300 MM F/3.5-6.3 DC MACRO OS HSM C

The C designation means Contemporary, which is Sigma's best bang for the buck series and the DC means it's for APS-sensor SLRs. Like other recent Sigma lenses, this one is compatible with the Sigma USB dock, which can be used to update firmware or tune focusing. This convenience zoom gives good wide angle to quite long telephoto range. Available for all current SLR mounts, this lens is a 2015 TIPA Award winner.

COVERAGE, DEGREES (APS): **76.5-5.4** // ELEMENTS, GROUPS: **17, 13** // CLOSEST FOCUS: **39 CM** // FILTER SIZE: **72 MM**
DIAMETER X LENGTH: **79 X 101.5 MM** // WEIGHT: **585 G**

$740 (STREET) **SIGMACANADA.CA**

SONY ZEISS VARIO-SONNAR T* 24-70 MM F/2.8 ZA SSM II

It's hard to improve on what was considered one sharp 24-70 mm f/2.8 zoom, but the II edition bears the T* initial, meaning it's been blessed with Zeiss's advanced coating. T-Star coatings have a long history but they improve contrast and reduce ghosting that is a problem with multi-surface lens designs. This weatherproof lens is designed for Sony's A-mount cameras.

COVERAGE, DEGREES (FF): **84-34** // ELEMENTS, GROUPS: **17, 13** // CLOSEST FOCUS: **34 CM** // FILTER SIZE: **77 MM**
DIAMETER X LENGTH: **83 X 111 MM** // WEIGHT: **975 G**

$2500 (STREET) **SONYSTYLE.CA**

TELEPHOTO ZOOMS

Telephoto zooms have their entire zoom range in telephoto, with the maximum focal length being approximately 300 mm. As in other categories, the premium telephoto zooms have fixed maximum apertures of f/2.8 or f/4. The latter are popular because they are lighter, smaller, less expensive and can be as good optically as the f/2.8 models.

CANON EF-S 55-250 MM F/4-5.6 IS STM

Canon had its eye on the needs of videographers when it put its higher-end STM and other AF components into this affordable zoom. This lens also carries Canon's Optical Image Stabilizer system, good for a performance increase of up to 3.5 stops. Designed for APS Canons, this a relatively small and light lens with a very useful telephoto zoom range.

COVERAGE, DEGREES (APS): **27-6** // ELEMENTS, GROUPS: **15, 12** // CLOSEST FOCUS: **85 CM** // FILTER SIZE: **58 MM**
DIAMETER X LENGTH: **70 X 111 MM** // WEIGHT: **375 G**

$400 (STREET) **CANON.CA**

NIKON DX NIKKOR 55-200 MM F/4-5.6G VR II

This update to the 55-200 mm Nikkor is slightly smaller and lighter than its predecessor, but it includes a more advanced image-stabilization system (VR II) and a different lens formula. Although it's a value-priced telephoto zoom it nonetheless includes one ED glass element. Designed for Nikon's DX SLRs, this is a compact and light zoom with good telephoto range.

COVERAGE, DEGREES (APS): **28-8** // ELEMENTS, GROUPS: **13,9** // CLOSEST FOCUS: **1.1 M** // FILTER SIZE: **55 MM**
DIAMETER X LENGTH: **70.5 X 83 MM** // WEIGHT: **300 G**

$350 (STREET) **NIKON.CA**

PENTAX D FA* 70-200 MM F/2.8 ED DC AW

This lens gets Pentax's star designation, indicating it's a member of the top tier. It is also an FA lens, meaning it's designed for full-frame K-mount cameras. This, along with the recently-introduced 24-70 mm f/2.8 create the two-lens kit that has been the duo of choice for professionals working in many fields. To help autofocus performance this lens uses a three-zone focus-limiting system. It is a weatherproof design with extensive sealing.

COVERAGE, DEGREES (FF): **34.5-12.5** // ELEMENTS, GROUPS: **19, 16** // CLOSEST FOCUS: **1.2 M** // FILTER SIZE: **77 MM**
DIAMETER X LENGTH: **91 X 203 MM** // WEIGHT: **2000 G**

$2499 (LIST) **RICOH-IMAGING.CA**

SONY 70-300 MM F/4.5-5.6 G SSM II

Designed for Sony A-mount SLTs, this telephoto zoom provides a satisfying reach at 300 mm, but is relatively compact and light. It includes ED glass, and a SSM (super sonic wave) motor for near-silent AF, and a focus-hold button on the lens barrel.

COVERAGE, DEGREES (FF): **34-8** // ELEMENTS, GROUPS: **16, 11** // CLOSEST FOCUS: **1.2 M** // FILTER SIZE: **62 MM**
DIAMETER X LENGTH: **82.5 X 135.4 MM** // WEIGHT: **800 G**

$1350 (STREET) **SONYSTYLE.CA**

SUPER-TELEPHOTO ZOOMS

The shortest focal lengths of super-telephotos overlap the longest focal lengths of telephoto zooms. Then they keep going—a maximum focal length of 600 mm is common today for a super-telephoto zoom. At these focal lengths, differences of a few millimetres have less impact visually than with wide-angle lenses. The difference between a photo taken with a 16-mm and a 24-mm lens (8 mm difference in focal length) can be dramatic.

CANON EF 100-400 MM F/4.5-5.6L II USM

Canon already had an EF 100-400 mm f/4.5-5.6L in its line-up, but the II designation points to a fresh design with different optical formula, different zooming mechanism and a more effective image stabilization system than its predecessor. The L and red ring mean this is part of Canon's first string.

COVERAGE, DEGREES (FF): **24-6** // ELEMENTS, GROUPS: **21, 16** // CLOSEST FOCUS: **98 CM** // FILTER SIZE: **77 MM**
DIAMETER X LENGTH: **94 X 193 MM** // WEIGHT: **1600 G**

$2400 (STREET) **CANON.CA**

NIKON AF-S NIKKOR 200-500 MM F/5.6E ED VR

Two aspects of Nikon's affordable super-zoom entry are noteworthy: it has a constant maximum aperture and lists for just $1650. Higher-end Nikon SLRs will be able to autofocus this at f/5.6, even with a teleconverter attached. The E designation means it uses Nikon's electromagnetic diaphragm for more responsive aperture control. It's reasonably compact, has ED elements and VR image stabilization.

COVERAGE, DEGREES (FF): **12-5** // ELEMENTS, GROUPS: **19, 12** // CLOSEST FOCUS: **2.2 M** // FILTER SIZE: **95 MM**
DIAMETER X LENGTH: **108 X 267.5 MM** // WEIGHT: **2300 G**

$1650 (STREET) **NIKON.CA**

PENTAX D FA 150-450 MM F/4.5-5.6 ED DC AW

Pentax joins the super zoom club with this FA (full-frame K-mount) lens. Like many recent Pentax lenses this one is extensively weatherproofed and has 21 seals. The AF controls are unusual, with four controls. Pentax says it eases use whether the lens is in portrait or landscape orientation, plus custom settings can be applied. A useful feature on telephoto zooms is focus limiting, and this model has a three-zone system: full, near and far.

COVERAGE, DEGREES (APS): **16.5-5.5** // ELEMENTS, GROUPS: **18, 14** // CLOSEST FOCUS: **2 M** // FILTER SIZE: **86 MM**
DIAMETER X LENGTH: **95 X 241.5 MM** // WEIGHT: **2000 G**

$2750 (STREET) **RICOH-IMAGING.CA**

SIGMA 150-600 MM F/5-6.3 DG OS HSM CONTEMPORARY/SPORTS

Sigma has released two super zooms with the same focal lengths and maximum (variable) aperture, but they are quite different beasts. The value-oriented Contemporary model is overall smaller and lighter, with a different lens formula—and of course, less expensive. The Sports model is the part of Sigma's performance line and is weatherproofed. Both are compatible with Sigma's USB Dock used to tune AF and update firmware. Both use silent focusing motors and are image stabilized.

CONTEMPORARY: **COVERAGE, DEGREES (FF): 16.4-4.1** // ELEMENTS, GROUPS: **20, 14** // CLOSEST FOCUS: **2.8 M**
FILTER SIZE: **95 MM** // DIAMETER X LENGTH: **105 X 260 MM** // WEIGHT: **1930 G**
SPORTS: **COVERAGE, DEGREES (FF): 16.4-4.1** // ELEMENTS, GROUPS: **24,16** // CLOSEST FOCUS: **2.6 M**
FILTER SIZE: **105 MM** // DIAMETER X LENGTH: **121 X 290 MM** // WEIGHT: **2860 G**

$1350, CONTEMPORARY; **$2400,** SPORTS (STREET) **SIGMACANADA.CA**

FIXED FOCAL-LENGTH LENSES

Often referred to as primes, these lenses trade the convenience of zoom lenses for other qualities. Single focal lengths from 35 mm to 85 mm make good walkabout or street-photography lenses because they are relatively compact and light, but have wide maximum apertures. And at those focal lengths, it is easy to reframe by physically moving in or out. Prime lenses provide the best performance at high magnification too, and you thus also see extreme telephotos (300+ mm) as primes. These are invariably the most expensive lenses in any manufacturer's line-up, but people who need the ultimate optical performance expect to pay for it.

CANON EF 35 MM F/1.4 II USM

This is one of Canon's L-series premium lenses that use a new lens element Canon calls BR Optics (Blue Spectrum Refractive) to reduce chromatic aberration. It also uses low dispersion and aspheric lens design and advanced coatings. This focal length is one of the favourites among street photographers, and the f/1.4 maximum aperture makes it a low-light champ too.

COVERAGE, DEGREES: **63** // ELEMENTS, GROUPS: **14, 11** // CLOSEST FOCUS: **28 CM** // FILTER SIZE: **72 MM**
DIAMETER X LENGTH: **80 X 106 MM** // WEIGHT: **760 G**

$2200 (STREET) **CANON.CA**

CANON EF 50 MM F/1.8 STM

Canon's redesigned 50 mm F/1.8 is a compact design that extends just a few centimeters from the body. It's also a feather-light model and includes a stepper type AF motor for silent AF with manual override.

COVERAGE, DEGREES: **46** // ELEMENTS, GROUPS: **6, 5** // CLOSEST FOCUS: **35 CM** // FILTER SIZE: **MM**
DIAMETER X LENGTH: **69 X 39 MM** // WEIGHT: **159 G**

$170 (STREET) **CANON.CA**

CANON EF 400 MM F/4 DO IS II USM

Canon uses what it calls "gapless dual-layer diffractive" elements in this version for improved flare reduction. This model is sealed against dust and moisture, has onboard image stabilization and advanced AF modes including a power focus (PF) system to aid focus shifting during video recording.

COVERAGE, DEGREES (FF): **6** // ELEMENTS, GROUPS: **18, 12** // CLOSEST FOCUS: **3.3 M** // FILTER SIZE: **55 MM DROP-IN**
DIAMETER X LENGTH: **128 X 233 MM** // WEIGHT: **2100 G**

$7600 (STREET) **CANON.CA**

LENSBABY 5.8 MM CIRCULAR FISHEYE

Available for all SLR mounts (Canon EF, Nikon F, Pentax K and Sony A), the 5.8 mm Circular Fisheye captures a 185-degree image (full circle on full-frame cameras, circle slightly cropped on APS SLRs). The interior barrel surfaces are polished for creative flare effects. The manual lens will focus as close as 0.6 cm from the front of the lens. Aperture range is from f/3.5-22.

COVERAGE, DEGREES (FF): **185** // ELEMENTS, GROUPS: **N/A** // CLOSEST FOCUS: **0.6 CM** // FILTER SIZE: **N/A**
DIAMETER X LENGTH: **70 X 76 MM** // WEIGHT: **298 G**

$380 (STREET) **LENSBABY.COM**

NIKON AF-S NIKKOR 20 MM F/1.8G ED

This fast, ultrawide checks all the boxes on Nikon's advanced parts list: two aspheric elements, two ED glass elements, silent-wave motor and Nano Crystal Coat. Nikon has another 20 mm prime in its catalogue but this new F/1.8 is the fastest one.

COVERAGE, DEGREES (FF): **94** // ELEMENTS, GROUPS: **13, 11** // CLOSEST FOCUS: **20 CM** • FILTER SIZE: **77 MM**
DIAMETER X LENGTH: **82 X 80.5 MM** // WEIGHT: **355 G**

$900 (STREET) **NIKON.CA**

NIKON AF-S NIKKOR 24 MM F/1.8G ED

If you don't like the sound of paying $2500 for the f/1.4 version this f/1.8 model is Nikon's other 24-mm G lens. It includes Nikon's advanced ingredients like ED and aspheric lens elements, silent wave focusing motor and Nano Crystal Coat.

COVERAGE, DEGREES (FF): **84** // ELEMENTS, GROUPS: **12, 9** // CLOSEST FOCUS: **23 CM** // FILTER SIZE: **72 MM**
DIAMETER X LENGTH: **77.5 X 83 MM** // WEIGHT: **355 G**

$880 (STREET) **NIKON.CA**

NIKON AF-S NIKKOR 300 MM F/4E PF ED V

The 300 mm f/4 was the first of three long telephotos that Nikon released in 2015. It incorporates a new lens design called PF or Phase Fresnel and is significantly smaller and lighter than the AF-S D version even though it has a more complex lens formula and VR image stabilization. It also has the E designation, for smoother electromagnetic aperture control.

COVERAGE, DEGREES (FF): **8** // ELEMENTS, GROUPS: **16, 10** // CLOSEST FOCUS: **1.4 M** • FILTER SIZE: **77 MM**
DIAMETER X LENGTH: **89 X 147.5 MM** // WEIGHT: **755 G**

$2250 (STREET) **NIKON.CA**

NIKON AF-S NIKKOR 500 MM AND 600 MM F/4E FL ED VR

Not for photographers of limited means, this pair of Nikon super telephotos was announced at the same time. Both use designs of 16 elements in 12 groups and look similar in appearance although the 600 mm version is overall bigger and heavier (but both are lighter than the previous versions, the new 600 mm is more than 2 kg lighter then previous 600 mm f/4). Both have Nikon's best lens technologies including ED and fluorite elements, a fluorine coating and Nano Crystal Coat, VR image stabilization and electromagnetic aperture control. These aren't the most expensive lenses in Nikon's current catalogue (the 800 mm f/5.6 lists for $21,000).

500 MM: **COVERAGE, DEGREES (FF): 5** // ELEMENTS, GROUPS: **16, 12**
CLOSEST FOCUS: **3.6 M** // FILTER SIZE: **SLIP-ON**
DIAMETER X LENGTH: **140 X 387 MM** // WEIGHT: **3000 G**
600 MM: COVERAGE, DEGREES: **4** // ELEMENTS, GROUPS: **16, 12**
CLOSEST FOCUS: **4.4 M** // FILTER SIZE: **SLIP-ON**
DIAMETER X LENGTH: **166 X 432 MM** // WEIGHT: **3800 G**

$13,000, 500 MM; **$15,800,** 600 MM (STREET) **NIKON.CA**

SIGMA 20 MM AND 24 MM F/1.4 DG HSM ART

Sigma's 20-mm and 24-mm lenses join the 35 mm and 50 mm to form a quadruple threat in the f/1.4 no-compromise DG (full-frame) Art line. Fast and wide don't usually play well together, but Sigma has included aspheric and low-dispersion elements for correction, particularly in the edges. The 20 mm is the fastest full-frame 20-mm lens currently available. Both are available in Canon, Nikon and Sigma mounts.

20 MM F/1.4: COVERAGE, DEGREES: **94.5** // ELEMENTS, GROUPS: **15, 11**
CLOSEST FOCUS: **27.6 CM** // FILTER SIZE: **NONE**
DIAMETER X LENGTH: **90 X 129.8 MM** // WEIGHT: **950 G**
24 MM F/1.4: COVERAGE, DEGREES: **84.1** // ELEMENTS, GROUPS: **15, 11**
CLOSEST FOCUS: **25 CM** // FILTER SIZE: **77 MM**
DIAMETER X LENGTH: **85 X 90.2 MM** // WEIGHT: **665 G**

$1250, 20 MM F/1.4; **$1030,** 24 MM F/1.4 (STREET) **SIGMACANADA.CA**

ZEISS OTUS 1.4/85

Is this really the best short telephoto in the world, as Zeiss claims? Photographers and their subjects will be the final judges of that, but stellar and amazing often crop up in descriptions of it. The 85 mm is an intimate telephoto, long enough to get you close but not too long to separate photographer from subject. This manual focus lens is available in Canon EF and Nikon F mounts.

COVERAGE, DEGREES (FF): **23.7** // ELEMENTS, GROUPS: **11, 9**
CLOSEST FOCUS: **80 CM** // FILTER SIZE: **86 MM**
DIAMETER X LENGTH: **138 X 141 MM** // WEIGHT: **1200 G**

$5500 (STREET) **ZEISS.CA**

Ultra-Light BINO HARNESS

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Digiscoping Adapters
Novagrade digiscoping adapters use patent pending attachment technology for mounting your camera, tablet, or phone to spotting scopes, binoculars, telescopes, and microscopes. The lightning fast universal mounting mechanism automatically centers the optics onto the eyepiece with just a quick twist.

ROGUE photographic design

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COMPACT-SYSTEM CAMERAS
FASTER, BETTER AND EASIER TO USE

By Louis Wong

Is the compact-system camera poised to catch up to—and overtake—the Single Lens Reflex? I doubt it will happen this year, or even the next. However, we are starting to see a growing number of professional photographers who are switching to a CSC as their main camera. They join the many enthusiast photographers that have already adopted it.

Invariably, CSC enthusiasts cite size and weight among the reasons why they first started to look at CSCs. A compact-system camera (also known as mirrorless) is characterized by a small form factor (compact) and the availability of interchangeable lenses and accessories (system). The removal of the mirror box (and hence the term mirrorless) allowed for a slimmer body design as well as smaller and lighter lenses. Consider that the Sony A7R II with a 42.4-MP full-frame sensor is smaller than a full-frame SLR and even some CSCs using smaller sensors.

If size and weight were the attention-getters, the features unique to CSCs are what's winning people over. The electronic viewfinder (EVF) is a case in point. For a long time, we believed that an EVF could never be as good as an optical viewfinder (OVF). But today's EVF matches the OVF (or comes very close). The EVF on the Fujifilm flagship X-T1 boasts an extremely high 2.36-million-dot resolution and a lag time of only 0.005 s—which is faster than the human eye can discern. In other words, this EVF is bright, detailed, fast and responsive with no more annoying time lag. It also has a 0.77x (35 mm equivalent) magnification, making it one of the largest EVFs, even slightly larger than the very best OVFs found in full-frame SLRs (the OVF in the Canon EOS 1D X and 1Ds III has a magnification of 0.76x).

Not content to match the capability of an OVF, the EVF goes even further: all kinds of useful exposure information can be overlaid on its display; real-time live view shows us exactly what we are capturing, with exposure compensation, white balance, contrast, and creative effects applied; focus aids such as magnified view and focus peaking help us achieve precise manual focus when using legacy lenses; and zebra patterns help us avoid overexposed areas in our shots. On an SLR, we take the picture, review it and then decide if we need to retake it; on a CSC, with a real-time live view EVF, we can see on the display exactly what we are going to record before we press the shutter button.

SENSOR SIZE AND LENS MOUNTS

One of the specifications of a CSC that confuses people the most is the different sensor sizes and lens mounts, so let's take a quick look at them. When you are considering a CSC, you need to be aware of the sensor size and lens mount used because the former determines ultimate image quality and the latter determines the availability of lenses.

There are five sensor sizes used in CSCs: Full-frame (Sony FE), APS-C (Canon M, Fujifilm X, Samsung NX and Sony E mounts), Four Thirds (Micro Four Thirds mount), 1-inch (Nikon 1 and Samsung NX-M mounts) and 1/1.7-inch (Pentax Q mount). All sensor types save the Pentax Q are much bigger than the sensors used in point-and-shoot cameras (typically 7 x 5 mm) and smartphone cameras (4.5 x 3.5 mm in the iPhone 6).

Different lens mounts mean that a lens made for one brand CSC will not directly mount and work on another brand CSC. The exception to this are Panasonic and Olympus which use the same Micro Four Thirds (M43) lens mount, and you can therefore use one company's lens on the other company's camera.

Invariably, CSC enthusiasts cite size and weight among the reasons why they first started to look at CSCs.

In general, when it comes to sensors, size matters: the bigger the sensor, the better the image quality you can expect. In practice, most people will be hard pressed to differentiate the image quality obtained from a Four Thirds sensor and an APS-C sensor. Other factors beside sensor size come into play, including the efficacy of the image processing engine and noise-reduction algorithms, and the quality of the glass used in the lenses.

Since the number of lenses available for each lens mount will differ from one manufacturer to the next, one way to help you make the right CSC purchase choice is to take a close look at what lenses are offered for each lens mount and see if the lens you desire for your type of photography is offered either by the manufacturer or a third-party.

LCDS, EVFS AND REAL-TIME LIVE VIEW

Live view on an SLR used to be slow and impractical and if you'd been used to your point-and-shoot or smartphone Live View, the transition to real-time live view of a CSC was comfortable and familiar. SLR live view has improved and LCDs across all camera types from point-and-shoot models to SLRs have become more versatile. All cameras also share the universal LCD problem of reduced view-ability in very bright sunlight and this is where the compact-system camera really starts to shine.

An EVF (electronic viewfinder) can be thought of as a small but very high-resolution LCD placed in an eye-level viewfinder. Since the display sits deep inside the viewfinder housing, it is protected from sunlight falling directly upon it, yet it has the same live-view advantages of the back screen.

Most entry-level CSCs don't have an EVF. Advanced CSCs sometimes lack an EVF, but the manufacturer may provide an optional external EVF that slips into an accessory port on the camera. This is the case for many Olympus PEN-series cameras, for example. This allows the camera to be smaller but remember that adding the external EVF will add to the overall size of the camera and the total cost of purchase. If you plan to also attach an external flash to your camera, be aware that usually you may attach either the external EVF or an external flash unit to the accessory port, but not both at the same time.

Expert and professional CSCs will usually include a very high-resolution built-in EVF with a fast refresh rate. We already mentioned earlier how far the EVF on some enthusiast and professional CSCs has come to match the capabilities of the OVF, and even surpass it in certain areas.

Two convenience features bear mentioning. A built-in EVF is usually fixed but the Panasonic Lumix GX8 has a built-in EVF that conveniently tilts 90 degrees up. A neat feature of the EVF on the Fujifilm X-T1 and X-T10 is Portrait View: when the camera is rotated 90 degrees for a portrait view, the exposure information also rotates so you can easily read it.

If size and weight were the attention-getters, the features unique to CSCs are what's winning people over.

ELECTRONIC SHUTTER

Most CSCs have a fully mechanical focal-plane shutter, which can be as noisy as those on SLRs. Shutter-induced camera shake can become a problem too, since CSCs have less mass to dampen the mechanical action. Some feature a hybrid focal-plane shutter where the first curtain is electronic and the second curtain is mechanical, and are therefore slightly quieter. Many now also include a fully electronic shutter option. An electronic shutter can be totally silent and vibration-free, an obvious advantage when you need to shoot in quiet places and be as discreet as possible.

AUTOFOCUS PERFORMANCE

One of the main areas where CSCs have not been competitive is against the extremely fast autofocus (AF) of the SLR. The SLR uses separate fast phase-detection AF sensors while CSCs use contrast-detect AF on the sensor, which is more accurate but slower.

The image sensors of many CSCs now include hybrid AF with both contrast-detect AF as well as phase-detection AF right onto the same sensor. This hybrid AF makes it possible to have Single-AF performance (locking focus at one point) that is as fast as—and in some CSCs, faster than—on an SLR.

The Samsung NX1 has a Hybrid AF with 205 phase-detection AF points and 209 contrast-detect AF points with an AF speed of up to 0.055 s. Panasonic CSCs use only contrast-detect AF but is now paired with a new Depth From Defocus (DFD) technology that takes depth information obtained using the lens attached (currently works only with Panasonic MFT lenses) to predict the direction and distance to move the lens to quickly acquire focus. Contrast-detect AF + DFD in the Panasonic GH4, G7 and GX8 delivers AF speeds of up to 0.07 s.

When you are considering a CSC, you need to be aware of the sensor size and lens mount used because the former determines ultimate image quality and the latter determines the availability of lenses.

So, for Single-AF shooting (which is most of our shooting), CSCs have matched SLRs. However, Continuous/Tracking Focus (locking focus on a subject, tracking its movement and continuously keeping it in focus) still needs much improvement on a CSC, especially for fast moving subjects. This is probably one of the last obstacles to overcome for CSCs if they want more professional photographers, especially those shooting sports, to adopt it.

WEATHER-RESISTANT/RUGGEDNESS

Expert and professional CSCs are increasingly offering a splash-proof, dust-proof and even freeze-proof body. There are also weather-resistant lenses to complement the cameras. The Olympus E-M1 and E-M5 Mark II, Fujifilm X-T1, Panasonic GH4 and GX8 feature a weather-resistant body that is sealed for protection against dust and moisture, and allows operating down to-10 Celsius.

RETRO STYLING

Olympus started the retro-styling craze with its PEN models. These CSCs look absolutely beautiful but don't be fooled: underneath the elegant design lies the same modern technology found in all Olympus CSCs. Another interesting development championed by Fujifilm in some of its CSCs is the return not only to a retro camera look, but also to the actual physical design elements that characterized 35-mm rangefinder film cameras: the Fujifilm X-Pro1 has a hybrid optical/electronic viewfinder, and the X-Pro1, X-T1 and X-T10 feature a dedicated Shutter Speed Dial, an Aperture Ring on their XF prime lenses, and Digital Split Manual Focus technology, which mimics the split images of rangefinder cameras.

ENTRY-LEVEL

Entry-level CSCs are a perfect step-up for those desiring better image quality and performance than what their smartphone or point-and-shoot cameras can provide. They are barely bigger than a smartphone and operate pretty much like a point-and-shoot camera. They usually do not have an EVF, and the photographer uses the large LCD for viewing and composing. The display screen may or may not be touch screen, but it may be tiltable or even flip 180 degrees up or down to face forward for easy selfies. Wi-Fi is usually built in and the manufacturer provides a free app that you can download and install on your smartphone/tablet to allow you to download images to your device and post them to social sites. Shooting modes are usually Auto and Scene modes. Filter effects and Panorama mode are usually included. Kit lenses are usually of good quality, though they may have mostly plastic construction to reduce costs. If all you want is better image quality and performance than what your smartphone can deliver, but have no desire to learn about photography, then an entry-level CSC is a fine bet.

CANON EOS M3

This is basically a compact mirrorless version of the Rebel T6i SLR, using the same 24.2-MP APS-C CMOS sensor and 49-point Hybrid CMOS III AF. Wi-Fi/NFC allows you to use your smartphone or tablet to remotely control the camera and to share photos. The 180-degree tilting touch screen lets you flip the LCD forward for easy selfies. Optional accessories include an external viewfinder and the EF-EOS M adapter to accept any Canon EF lenses.

SENSOR: **24.2-MP APS-C CMOS • ISO 100-12,800 + EXT TO 25,600** // LENS MOUNT: **CANON EF-M**
VIEWFINDER/LCD: **OPTIONAL • 3-INCH 1,040,000-DOT TILT TOUCH LCD** // OTHER: **WI-FI, NFC, BUILT-IN FLASH**
DIMENSIONS/WEIGHT: **110.9 X 68.0 X 44.4 MM • 366 G BODY ONLY**

$850, BODY ONLY (STREET) **CANON.CA**

CANON EOS M10

The Canon EOS M10 is a compact-system camera that slots just below the EOS M3, with an 18-MP APS-C CMOS sensor. Wi-Fi/NFC allows you to use your smartphone or tablet to remotely control the camera and to share photos. Self Portrait mode and the 180-degree tilting touch screen lets you face the LCD forward for easy selfies. There is no hot shoe for an external flash or viewfinder. It is offered with a new, retractable, 15-45 mm lens.

SENSOR: **18-MP APS-C CMOS • ISO 100-12,800 + EXTENDED ISO 25,600** // LENS MOUNT: **CANON EF-M**
VIEWFINDER/LCD: **OPTIONAL • 3" 1,040,000-DOT TILT TOUCH LCD** // OTHER: **WI-FI, NFC, BUILT-IN FLASH**
DIMENSIONS: **108 X 66.6 X 35 MM** • WEIGHT: **301 G WITH BATTERY**

$729, WITH 15-45 MM F/3.5-5.6 IS STM (LIST) **CANON.CA**

FUJIFILM X-A2

This selfie-ready camera has a 3-in. (920,000-dot) LCD that, when tilted up 175-degrees to face forward, automatically activates eye detection AF to focus on the eyes. The pop-up flash will throttle down the flash output to prevent washout of the subject and background when shooting macro shots in dim lighting. The X-A2 will accept all XF lenses, plus two kit zoom lenses sporting the XC label (XC 16-50 mm and XC 50-230 mm).

SENSOR: **16.3-MP APS-C CMOS • ISO 200-6400 EXT TO 100, 12,800, 25,600**
VIEWFINDER/LCD: **NONE/3-INCH 920,000-DOT TILT LCD** // OTHER: **WI-FI, SUPER I-FLASH**
DIMENSIONS: **116.9 X 66.5 X 40.4 MM** // WEIGHT: **350 G WITH BATTERY**

$599, WITH XC16 50-MM II LENS (LIST) **FUJIFILM.CA**

NIKON 1 J5

Nikon's latest CSC uses a 20.8-MP version of the 1.0-in. CX CMOS sensor. It's fast with continuous shooting of 20 fps with AF and 60 fps without AF, at full resolution. High ISO NR stacks four separate images to reduce noise. Wi-Fi/NFC allows you to use your smartphone or tablet to remotely control the camera and to share photos. The 180-degree tilting touch screen lets you face the LCD forward for easy selfies.

SENSOR: **20.8-MP CX CMOS • ISO 160-12,800** // VIEWFINDER/LCD: **NONE/3-INCH 1.037-M DOT TILT TOUCH LCD**
OTHER: **WI-FI, NFC, ELECTRONIC SHUTTER UP TO 1/16000 S, BUILT-IN FLASH, UP TO 1200 FPS FRAME RATE**
DIMENSIONS: **98.3 X 59.7 X 31.5 MM** // WEIGHT: **265 G WITH BATTERY**

$599, WITH 1 NIKKOR VR 10-30 MM F/3.5-5.6 PD (LIST) **NIKON.CA**

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OLYMPUS AIR A01

This lens-style CSC features the Micro Four Thirds (M43) mount (thus allowing the use of any compatible M43 lens), a 16.1-MP sensor, built-in battery and a microSD card slot. It connects to your smartphone or tablet using Bluetooth and Wi-Fi, and uses the OA.Central app to allow you to view the images on your smartphone or tablet's screen, and provide touch control to remotely operate the camera. It integrates with Amazon Cloud Drive for direct-to-cloud storage.

SENSOR: **16.1-MP 4/3 LIVE MOS • ISO 200-12,800 EXT TO 100** // LENS MOUNT: **MICRO FOUR THIRDS**
VIEWFINDER/LCD: **NONE** // OTHER: **WI-FI, OA.CENTRAL APP (REMOTE CONTROL), ELECTRONIC SHUTTER UP TO 1/16000 S** // DIMENSIONS: **56.9 X 57.1 X 43.6 MM** // WEIGHT: **147 G WITH BATTERY**

$399, BODY ONLY (LIST) **OLYMPUSCANADA.COM**

OLYMPUS PEN E-PL7

This CSC features an elegant retro design in a compact and light body that packs many of the features of the more expensive OM-D cameras. It features 3-axis in-body image stabilization, 81-point AF and 8 fps continuous shooting. Its touch-screen LCD tilts down 180 degrees to face forward for easy selfies. Built-in Wi-Fi allows you to remotely control the camera with your smartphone or tablet, and to post images to social sites.

SENSOR: **16.1-MP 4/3 LIVE MOS • ISO 200-25,600 EXT TO 100** // LENS MOUNT: **MICRO FOUR THIRDS**
VIEWFINDER/LCD: **NONE/3-INCH 1,037,000-DOT TILT TOUCH LCD** // OTHER: **WI-FI, OI.SHARE APP (REMOTE CONTROL), EXTERNAL FLASH INCLUDED** // DIMENSIONS: **114.9 X 67 X 38.4 MM** // WEIGHT: **357 G WITH BATTERY**

$599, BODY ONLY (LIST) **OLYMPUSCANADA.COM**

PANASONIC LUMIX DMC-GF7

This is another selfie-ready CSC with a Touch LCD that tilts up 180 degrees to face forward and two new shutter modes that automatically snap a picture when faces are in close proximity (Buddy Shutter) or or when you briefly wave your hand in front of your face (Face Shutter). The Fn1 button even functions as a second shutter release button to allow using your right hand or left hand.

SENSOR: **16.1-MP 4/3 LIVE MOS • ISO 200-25,600 EXT TO 100** // LENS MOUNT: **MICRO FOUR THIRDS**
VIEWFINDER/LCD: **NONE/3-INCH 1,040,000-DOT TILT TOUCH LCD** // OTHER: **SNAP MOVIE, TIME-LAPSE, JUMP SNAP, BUILT-IN FLASH, WI-FI, ELECTRONIC SHUTTER UP TO 1/16000 S, PANASONIC IMAGE APP (REMOTE CONTROL)**
DIMENSIONS: **106.5 X 64.6 X 33.3 MM** // WEIGHT: **266 G WITH BATTERY**

$699, WITH 12-32 MM LENS (LIST) **PANASONIC.CA**

PENTAX Q-S1

This is an ultra-compact camera that uses a tiny 12.4-MP 1/1.7-inch CMOS sensor. It features a native ISO range of 100-12800, an electronic shutter that extends the shutter speed range from 1/8000 s to 30 s, in-body shake reduction, and Full HD video. It relies on a number of in-camera image-processing tools for creative control: Custom Images, Digital Filter, Smart Effects and Bokeh Control.

SENSOR: **12.4-MP 1/1.7-INCH CMOS • ISO 100-12,800** // LENS MOUNT: **PENTAX Q**
VIEWFINDER/LCD: **OPTIONAL/3-INCH 460,000-DOT LCD** // OTER: **ELECTRONIC SHUTTER UP TO 1/8000 S, BUILT-IN FLASH 8** // DIMENSIONS: **104 X 58 X 34 MM** // WEIGHT: **203 G WITH BATTERY**

$469, BODY ONLY (STREET) **PENTAX.CA**

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SONY ALPHA 5100

This camera packs a punch with a 24.3-MP APS-C CMOS sensor, 179-point phase-detection AF for a fast 0.07 s autofocus and native ISO range of 100-25,600. The 3-in. touch panel LCD flips up 180 degrees for easy selfies. Built-in Wi-Fi/NFC allows instant sharing via smartphone or tablet. Video options include Full HD in cinematic 24p, 60p and 60i frame rates, XAVC S with 50-Mb/s bitrate, Blu-ray quality AVCHD and MP4.

SENSOR: **24.3-MP APS-C CMOS • ISO 100-25,600** // LENS MOUNT: **SONY E**
VIEWFINDER/LCD: **NONE/3-INCH 921,000-DOT TILT TOUCH LCD**
OTHER: **WI-FI, NFC, PLAYMEMORIES CAMERA APPS (REMOTE CONTROL), POP-UP FLASH**
DIMENSIONS: **109.6 X 62.8 X 35.7 MM** // WEIGHT: **283 G WITH BATTERY**

$449, BODY ONLY (LIST) **SONYSTYLE.CA**

ADVANCED

Advanced CSCs are a step-up from an entry-level CSC. While it continues to provide Auto and Scene modes to ease the transition, it will also provide semi-automatic and full manual modes, as well as more customizations for those who may wish more control. An advanced CSC is therefore a perfect camera for someone who wishes to learn about photography and wants to explore the more creative functions available in such a camera.

FUJIFILM X-T10

A more affordable version of the X-T1, the smaller X-T10 features the same 16.3-MP X-Trans sensor and improved hybrid AF for superior AF tracking. It also features a huge, very high resolution and extremely fast refresh OLED EVF, a tilting LCD, focus peak highlight and Digital Split Image to assist manual focusing. It's fast and handles superbly with direct control dials. Beginners get the addition of an Auto setting that offers Scenes Modes and Advanced SR Mode.

SENSOR: **16.3-MP APS-C X-TRANS CMOS II • ISO 200-6400 EXT TO 100, 12,800, 25,600, 51,200**
LENS MOUNT: **FUJIFILM X** // VIEWFINDER/LCD: **2,360,000-DOT OLED/3-INCH 920,000-DOT TILT LCD**
OTHER: **POP-UP FLASH, ELECTRONIC SHUTTER UP TO 1/32,000 S, WI-FI, CAMERA REMOTE APP**
DIMENSIONS: **118.4 X 82.8 X 40.8 MM** // WEIGHT: **381 G WITH BATTERY**

$899, BODY ONLY (LIST) **FUJIFILM.CA**

OLYMPUS OM-D E-M10 MARK II

The E-M10 Mark II improves on the E-M10 with a 2,360,000-dot OLED EVF, 5-axis in-body IS, 8.5-fps continuous shooting, Focus Bracketing, 4K Time-Lapse and an electronic shutter of 1/16000 s that allows silent shooting. The tilt touchscreen LCD can now be used as an AF Targeting Pad. New is a Simulated Optical Viewfinder (S-OVF) feature with higher dynamic range. A nod to the classic style of the OM-1 SLR is the large power switch.

SENSOR: **16.1-MP 4/3 LIVE MOS • ISO 200-25,600 EXT TO 100** // LENS MOUNT: **MICRO FOUR THIRDS**
VIEWFINDER/LCD: **2,360,000-DOT OLED/3-INCH 1,037,000-DOT TILT TOUCH LCD** // OTHER: **5-AXIS SENSOR-SHIFT IMAGE STABILIZATION (4.0 EV), WI-FI, POP-UP FLASH, ELECTRONIC SHUTTER UP TO 1/16,000 S, OI.SHARE APP (REMOTE CONTROL)** // DIMENSIONS: **119.5 X 83.1 X 46.7 MM** // WEIGHT: **390 G WITH BATTERY**

$749, BODY ONLY; **$899,** WITH 14-42 MM EZ LENS (LIST) **OLYMPUSCANADA.COM**

PANASONIC LUMIX DMC-GM5

Packing many of the features of the more expensive Lumix G cameras in more a compact and lightweight body, the GM5 features a 3-inch touch-screen LCD and a 1,116,000-dot high-resolution EVF. Shoot Full-HD video in AVCHD or MP4. Built-in Wi-Fi allows you to remotely control the camera with your smartphone or tablet, and to post images to social sites.

SENSOR: **16.1-MP 4/3 LIVE MOS • ISO 200-25,600 EXT TO 100** // LENS MOUNT: **MICRO FOUR THIRDS**
VIEWFINDER/LCD: **1,166,000-DOT/3-INCH 921,000-DOT TOUCH LCD** // OTHER: **SNAP MOVIE MODE, TIME LAPSE, STOP MOTION ANIMATION, WI-FI, ELECTRONIC SHUTTER UP TO 1/16,000 S, PANASONIC IMAGE APP (REMOTE CONTROL)** // DIMENSIONS: **98.5 X 59.5 X 36.1 MM** // WEIGHT: **211 G WITH BATTERY**

$1049, WITH 12-32 MM LENS (LIST) **PANASONIC.CA**

SAMSUNG NX500

This advanced CSC has a 28.2-MP APS-C CMOS sensor, offering a fast 1/6000 s shutter speed and 9-fps continuous shooting. It uses the same 28-MP APS-C CMOS sensor as in the Samsung NX1 as well as offering the same 4K UHD video. Built-in Wi-Fi, NFC and Bluetooth provide easy connectivity and remote control. The 3.0-in. Super AMOLED touch-screen display tilts up and down and flips up 180 degrees for easy selfies.

SENSOR: **28.2-MP APS-C CMOS • ISO 100-25,600 EXT TO 51,200** // LENS MOUNT: **SAMSUNG NX**
VIEWFINDER/LCD: **NONE/3-INCH 1,036,000-DOT TILT TOUCH SUPER AMOLED LCD**
OTHER: **WI-FI, BLUETOOTH, NFC, 4K VIDEO** // DIMENSIONS: **119.5 X 63.6 X 42.5 MM** // WEIGHT: **292 G BODY ONLY**

$899, WITH 16-50 MM PZ LENS (STREET) **SAMSUNG.CA**

EXPERT

Expert-level CSCs target the enthusiast photographers who are already comfortable with the different functions of a camera and knowledgeable about how to get the highest-quality images from a camera and in post-processing. They demand the highest quality out of their cameras but not necessarily at the highest cost. As such, many of the expert CSCs are cheaper versions of the professional CSCs. To reduce cost, manufacturers may skip weather resistance in the body, use more plastic than metal and omit certain features that only professional photographers use in the field or studio. Many professional photographers will use an expert CSC as a second camera.

OLYMPUS OM-D E-M5 MARK II

This is a cheaper version of the E-M1 but adds a twist: a new high-resolution option for landscapes with no moving objects and studio shots uses its sensor-shift circuit to combine 8 shots into a single 40-MP JPEG image or 64-MP Raw file. It is housed in a weather-resistant, all-metal body that is sealed for protection against dust and moisture and allows operating down to -10 °C. Its 5-axis in-body image stabilization provides five exposure steps of compensation and is available for both still and video shooting.

SENSOR: **16.1-MP 4/3 LIVE MOS • ISO 200-25,600 EXT TO 100** // LENS MOUNT: **MICRO FOUR THIRDS**
VIEWFINDER/LCD: **2,360,000-DOT/3-INCH 1,037,000-DOT VARI-ANGLE TOUCH LCD** // OTHER: **5-AXIS SENSOR-SHIFT IMAGE STABILIZATION (5.0 EV), WI-FI, WEATHER-RESISTANT, 40-MP HIGH-RES SHOOTING OPTION, ELECTRONIC SHUTTER UP TO 1/16000 S, OLYMPUS CAPTURE TETHERING APP, EXTERNAL FLASH INCLUDED**
DIMENSIONS: **123.7 X 85 X 44.5 MM** // WEIGHT: **469 G WITH BATTERY**

$1099, BODY ONLY (LIST) **OLYMPUSCANADA.COM**

Just because you can buy a camera just about anywhere, it doesn't mean you should.

The moment you step inside a Vistek showroom, you know you're in for a completely different shopping experience. From DSLRs to Mirrorless to medium format camera systems, Vistek carries a selection you'll not see at any other store. In addition, we carry all the leading names, including Canon, Nikon, Olympus, Panasonic, Sony, Fuji, Leica, Phase One and others. Plus, with the help of a Vistek camera specialist you can explore product differences and see why you're further ahead with one camera over another. Shopping at Vistek is a sure-fire guarantee that you'll get the right camera at the right price.

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PANASONIC LUMIX DMC-G7

A cheaper version of the GH4, the G7 features 4K Video, 4K Photo and 4K Burst at 30 fps to capture the perfect moment and extract an 8-MP still photo from the video. Its new Depth From Defocus (DFD) AF technology delivers AF speeds of up to 0.07 s. Starlight AF allows users to achieve a clear photo of a star in the night sky with autofocus. The OLED EVF has 2,360,000-dot resolution and 0.7x magnification.

SENSOR: **16-MP 4/3 LIVE MOS • ISO 200-25,600 EXT TO 100** // LENS MOUNT: **MICRO FOUR THIRDS**
VIEWFINDER/LCD: **2,360,000-DOT OLED/3-INCH 1.04-M DOT FREE-ANGLE TOUCH LCD** // OTHER: **4K VIDEO 4K PHOTO, 4K BURST, WI-FI, ELECTRONIC SHUTTER 40 FPS, PANASONIC IMAGE APP (REMOTE CONTROL)**
DIMENSIONS: **124.9 X 86.2 X 77.4 MM** // WEIGHT: **410 G WITH BATTERY**

$1049, WITH 14-42 MM LENS (LIST) **PANASONIC.CA**

PANASONIC LUMIX DMC-GX8

The GX8 has Dual IS (Image Stabilization), with both Sensor-shift IS and Optical IS working at the same time. It also features 4K Video, 4K Photo and 4K Burst at 30 fps to capture the perfect moment and extract an 8-MP still photo from the video. Depth From Defocus (DFD) AF technology delivers AF speeds of up to 0.07 s. The 2,360,000-dot resolution OLED EVF tilts up 90 degrees and has a magnification of 0.77x.

SENSOR: **20.3-MP 4/3 LIVE MOS • ISO 200-25,600 EXT TO 100** // LENS MOUNT: **MICRO FOUR THIRDS**
VIEWFINDER/LCD: **2,360,000-DOT TILT OLED/3-INCH 1,040,000-DOT FREE-ANGLE TOUCH LCD** // OTHER: **4K PHOTO, 4K BURST, WI-FI, NFC, WEATHER-RESISTANT, DUAL I.S., ELECTRONIC SHUTTER UP TO 1/16,000 S, PANASONIC IMAGE APP (REMOTE CONTROL)** // DIMENSIONS: **133 X 78 X 63 MM** // WEIGHT: **487 G WITH BATTERY**

$1599, BODY ONLY (LIST) **PANASONIC.CA**

SONY ALPHA 7 II

The Sony A7 II has a full-frame sensor with 5-axis sensor-shift image stabilization, a Hybrid AF system with 117 phase-detection points and 25 contrast-detection points for improved subject-tracking performance and focusing speed, a high-contrast XGA OLED EVF, and a tiltable 3-inch high-resolution LCD. The Alpha 7 II features Wi-Fi/NFC and you can also tether the camera to a PC using a USB cable for still and video remote control.

SENSOR: **24.3-MP FULL-FRAME CMOS • ISO 100-25,600** // LENS MOUNT: **SONY FE** // VIEWFINDER/LCD: **2,400,000-DOT OLED/3-INCH 1,229,000-DOT TILT LCD** // OTHER: **WI-FI, NFC, PLAYMEMORIES CAMERA APPS (REMOTE CONTROL)**
DIMENSIONS: **126.9 X 95.7 X 59.7 MM** // WEIGHT: **599 G WITH BATTERY**

$1699, BODY ONLY (LIST) **SONYSTYLE.CA**

PROFESSIONAL

Professional-class CSCS are meant as an alternative to professional SLRs and are designed to give professional photographers the type of image quality, performance and control they are used to with their SLRs. We can therefore expect top-notch performance in all aspects: high image quality, low noise at high ISOs, fast and precise autofocus even in low-light situations, fast operation and speed, fast continuous shooting, fast-refresh EVF, high-resolution LCD display screens. Many feature all-metal construction in a weather-resistant body. High-quality lenses and accessories complement the cameras.

FUJIFILM X-T1 IR

The Fujifilm X-T1 IR (Infrared) is an infrared version of the X-T1. It retains the specs of the X-T1, except that it does not have an infrared filter in front of the sensor, allowing it to see light from the ultraviolet (UV), visible and infrared (IR) portions of the light spectrum (approximately 380 to 1000 nm). It remains weather-resistant and is complemented with a series of weather-resistant zoom lenses.

SENSOR: **16.3-MP APS-C X-TRANS CMOS II • ISO 200-6400 EXT TO 100, 12,800, 25,600, 51,200**
LENS MOUNT: **FUJIFILM X** // VIEWFINDER/LCD: **2,360,000-DOT OLED/3-INCH 1,040,000-DOT TILT LCD**
OTHER: **ELECTRONIC SHUTTER UP TO 1/32000 S, WI-FI, CAMERA REMOTE APP**
DIMENSIONS: **129 X 89.8 X 46.7 MM** // WEIGHT: **440 G WITH BATTERY**

$2099, BODY ONLY (LIST) **FUJIFILM.CA**

Shop.Panasonic.ca/lumix

Panasonic

SPLASH/DUST PROOF

Inspire Your Creativity

The **LUMIX GX8** is the photographer's equivalent of an artist's palette – it has all the tools you need at your fingertips. Featuring Dual Image Stabilization for steady hand-held shots even at slow shutter speeds, plus a 20MP Four Thirds sensor that delivers crisp images with a simple shutter press. Ultra-Fast focusing and **4K** resolution ensure you don't miss a shot. The **GX8** is truly a work of art.

Photography © Johan Sorensen
Artist: www.juliegladstone.com

LUMIX

4K

SAMSUNG NX1

This professional-grade CSC is housed in a weather-resistant body and is built for speed with AF of 0.055 s and 15-fps continuous shooting at full resolution. It features a 28-MP APS-C CMOS sensor, a hybrid AF with 205 phase-detection AF points and 209 contrast AF points, 4K UHD video, an XGA OLED EVF and a 3-inch Super AMOLED tiltable, touch-screen LCD. Built-in Wi-Fi, NFC and Bluetooth provide easy connectivity and remote control.

SENSOR: **28.2-MP APS-C CMOS • ISO 100-25,600 EXT TO 51,200** // LENS MOUNT: **SAMSUNG NX**
VIEWFINDER/LCD: **2,360,000-DOT OLED/3-INCH 1,036,000-DOT TILT TOUCH SUPER AMOLED LCD**
OTHER: **4K VIDEO, WI-FI, BLUETOOTH, NFC (ANDROID ONLY), SAMSUNG CAMERA MANAGER (REMOTE CONTROL)**
DIMENSIONS: **138.5 X 102.3 X 65.8 MM** // WEIGHT: **550 G BODY ONLY**

$2999, WITH 16-50 MM F2-2.8 AND GRIP (STREET) **SAMSUNG.CA**

SONY ALPHA 7R II

The Sony A7R II uses a 42.4-MP full-frame sensor with no optical low-pass filter. The camera is weather-resistant and features 5-axis sensor-shift image stabilization, 4K video recording, a hybrid AF system with 399 phase-detection points and 25 contrast-detection points, a high-contrast XGA OLED EVF, a tiltable 3-inch high-resolution LCD, Wi-Fi/NFC and you can also tether the A7RII to a PC using a USB cable for still and video remote control.

SENSOR: **42.4-MP FULL-FRAME CMOS • ISO 100-25,600 EXT TO 50, 51,200, 102,400** // LENS MOUNT: **SONY FE**
VIEWFINDER/LCD: **2,400,000-DOT OLED/3-INCH 1,229,000-DOT TILT LCD** // OTHER: **4K VIDEO, WI-FI, NFC, PLAYMEMORIES CAMERA APPS (REMOTE CONTROL)** // DIMENSIONS: **126.9 X 95.7 X 60.3 MM**
WEIGHT: **625 G WITH BATTERY**

$3999, BODY ONLY (LIST) **SONYSTYLE.CA**

SONY ALPHA 7S II

The Sony A7S II is the low-light and video specialist of the A7 family. It has a 5-axis sensor-shift image stabilization and a 169-point contrast detection AF system, a high contrast XGA OLED EVF, and a tiltable 3-in. high resolution LCD. ISO range goes to an impressive 409600. It records full-pixel 4K video at up to 120 Mbps, and Full HD at up to 120 Mbps, with advanced tone-mapping features (s-log3 gamma) to boost dynamic range.

SENSOR: **12.2-MP FULL-FRAME CMOS • ISO 100-102,400 EXT TO 50, 409,600** // LENS MOUNT: **SONY FE** VIEWFINDER/LCD: **2.4-M DOT OLED/3-INCH 1,229,000-DOT TILT LCD** // OTHER: **WI-FI, NFC, PLAYMEMORIES CAMERA APPS (REMOTE CONTROL)** // DIMENSIONS: **126.9 X 95.7 X 60.3 MM** // WEIGHT: **627 G WITH BATTERY**

$3799, BODY ONLY (LIST) **SONYSTYLE.CA**

COMPACT-SYSTEM LENSES
QUALITY AND DIVERSITY SIGNAL A MATURING PLATFORM

By Louis Wong

As stated in the previous article, compact-system cameras use sensors whose dimensions range from roughly 36 x 24 mm to 13 x 9 mm. A lens of a given focal length won't show the same amount of a scene when used on cameras with different-size sensors. A 135-mm lens on a Sony A7 (the CSC with the biggest sensor dimensions) will capture roughly the same area in a scene as a 50-mm lens on a Nikon 1 (the CSC with one of the smallest sensor dimensions). The shorthand convention for this long-winded explanation is "focal-length equivalent," using full-frame size (36 x 24 mm) as the reference point. Thus on a Nikon 1 camera, a 50-mm lens is the focal-length equivalent of a 135-mm lens on a full-frame camera. In the following listings the focal-length equivalent is given in parentheses after the actual focal length.

ULTRA WIDE-ANGLE

OLYMPUS M.ZUIKO DIGITAL ED 7-14 MM F/2.8

This premium ultra wide-angle zoom has a wide maximum aperture and features dust, splash and freeze-poof construction compliant with professional use. Advanced lens design and coating deliver fine image quality. Features include swift, nearly silent autofocus and a Manual Focus Clutch mechanism that allows switching between auto and manual focus by simply pulling the focus ring toward you.

MOUNT(S): **M43** // FOCAL LENGTH: **7-14 MM (14-28 MM)** // EXOTIC GLASS ELEMENTS: **2 ASPHERICAL ED, 1 DSA, 1 ASPHERICAL, 3 SUPER ED, 1 ED, 2 HR** // EXOTIC COATINGS: **Z.E.R.O.** // DIAMETER X LENGTH: **78.9 X 105.8 MM** WEIGHT: **534 G**

$1299 (LIST) **OLYMPUSCANADA.COM**

VOIGTLANDER MFT 10.5 MM F/0.95 NOKTON

This 21-mm equivalent, ultra wide-angle lens designed exclusive for Micro Four Thirds mount has an unusually wide aperture of f/0.95 with 10 aperture blades for beautiful bokeh. It features two aspherical elements for sharp images even wide open. Selective Aperture Control System allows a continuous and soundless change of the aperture, especially important for video recording.

MOUNT(S): **M43** // FOCAL LENGTH: **10.5 MM (21 MM)** // EXOTIC GLASS ELEMENTS: **1 SUPER HR, 1 ASPHERICAL** DIAMETER X LENGTH: **77 X 82.4 MM** // WEIGHT: **585 G**

$1299 (LIST) **JCLSALESGROUP.COM**

WIDE-ANGLE

FUJINON XF16 MM F/1.4 R WR

This premium wide-angle lens has an unusually wide maximum aperture that makes it an ideal choice for available-light landscape, street and travel photography. It has a high-speed autofocus of 0.11 seconds, near-silent operation for discreet shooting and is weather-, dust- and freeze-proof down to -10 °C. Advanced optical design and coatings ensure fine image quality.

MOUNT(S): **FUJIFILM X** // FOCAL LENGTH: **16 MM (24 MM)** // EXOTIC GLASS ELEMENTS: **2 ASPHERICAL, 2 ED** EXOTIC COATINGS: **HT-EBC, NANO GI** // DIAMETER X LENGTH: **73.4 X 73 MM** // WEIGHT: **375 G**

$1149 (LIST) **FUJIFILM.CA**

SONY FE 28 MM F/2

This full-frame 28-mm wide-angle prime lens has a wide maximum aperture for available light shooting hand-held. It features advanced optics and coatings to deliver excellent sharpness and smooth bokeh. Internal focusing using a fast and quiet linear actuator makes this lens ideal for both still and movie. It's a great choice for shooting landscapes or for everyday use.

MOUNT(S): **SONY FE (FULL FRAME)** // FOCAL LENGTH: **28 MM (42 MM ON AN APS-C CAMERA)**
EXOTIC GLASS ELEMENTS: **1 ED, 1 SUPER ED, 2 ASPHERICAL, 1 ADVANCED ASPHERICAL**
DIAMETER X LENGTH: **64 X 60 MM** // WEIGHT: **200 G**

$529 (LIST) **SONYSTYLE.CA**

SONY DISTAGON T* FE 35 MM F/1.4 ZA

This full-frame wide-angle prime lens is an excellent choice for a wide range of photography, from snapshots and landscapes to indoor portraits and night scenes. The advanced optical design combined with ZEISS T* coating deliver outstanding image resolution and suppresses reflections for superior contrast clarity. The Direct Drive SSM (DDSSM) system enables whisper-quiet precision AF.

MOUNT(S): **SONY FE (FULL FRAME)** // FOCAL LENGTH: **35 MM (52.5 MM ON APS-C CAMERA)**
EXOTIC GLASS ELEMENTS: **2 ASPHERICAL, 1 ADVANCED ASPHERICAL** // EXOTIC COATINGS: **ZEISS T-STAR COATING**
DIAMETER X LENGTH: **78.5 X 112 MM** // WEIGHT: **630 G**

$1749 (LIST) **SONYSTYLE.CA**

ZEISS BATIS 2/25

This wide-angle lens designed especially for the Sony A7 full-frame CSCs features advanced lens design for high image quality and sharpness. Linear motors deliver fast, quiet autofocus. A rubberized focus ring supports manual focusing. It is sealed against dust and splash. An innovative OLED display makes it easy to read off distance and depth of field even in poor lighting.

MOUNT(S): **SONY FE (FULL FRAME)** // FOCAL LENGTH: **25 MM**
EXOTIC GLASS ELEMENTS: **4 ASPHERICAL, 5 SPECIAL** // DIAMETER X LENGTH: **78 X 78 MM** // WEIGHT: **335 G**

$1599 (STREET) **ZEISS.CA**

ZEISS LOXIA 2.8/21

This super wide-angle prime lens for Sony E-mount full-frame cameras is targeted to cinematographers. It features mechanical aperture setting and deactivation of the aperture click stop, precise and smooth manual focus operation and minimum focusing distance of 25 cm. The casing is high-grade metal with a weatherproof rubber seal around the mount.

MOUNT(S): **SONY E** // FOCAL LENGTH: **21 MM** // MAX APERTURE(S): **F/2.8** // DIAMETER X LENGTH: **62.1 X 85 MM**
WEIGHT: **394 G**

$2049 (LIST) **ZEISS.CA**

NORMAL FOCAL LENGTHS

FUJINON XF16-55 MM F/2.8 R LM WR

This premium grade (3.4x, 24-84 mm equivalent) lens has a constant f/2.8 aperture throughout the zoom range. A Twin Linear Motor provides quiet and high-speed AF of 06 s when used on an X Series camera offering Phase Detection AF. It is weather, dust and freeze proof down to -10 °C. Advanced lens design and special coatings deliver edge-to-edge sharpness.

MOUNT(S): **FUJIFILM X** // FOCAL LENGTH: **16-55 MM (24-84 MM)** // EXOTIC GLASS ELEMENTS: **3 ASPHERICAL, 3 ED**
EXOTIC COATINGS: **HT-EBC, NANO-GI** // DIAMETER X LENGTH: **83.3 X 106 MM** // WEIGHT: **655 G**

$1349 (LIST) **FUJIFILM.CA**

FUJINON XF 35 MM F2 R WR

This premium standard prime lens for Fujifilm X-mount compact-system cameras features a large nine-blade f/2 aperture for rich bokeh, an internal focus system combined with a stepping motor to produce quiet and fast (0.08 s) autofocus, and an exterior that is weather- and dust-resistant and can work in temperatures down to -10 °C.

MOUNT(S): **FUJIFILM X** // FOCAL LENGTH: **35 MM (53 MM)** // MAX APERTURE(S): **F/2** // EXOTIC GLASS ELEMENTS: **2 ED GLASS** // EXOTIC COATING: **NANO-GI** // DIAMETER X LENGTH: **60 X 46 MM** // WEIGHT: **170 G**

US$**599** (LIST) **FUJIFILM.CA**

PANASONIC LUMIX G MACRO 30MM F2.8 ASPH MEGA OIS

This lens features a 1x magnification (2x, 35-mm camera equivalent), deep depth of field, and a closest-focusing distance of 10.5 cm for shooting macro shots of flowers, food or small accessories. MEGA O.I.S. (Optical Image Stabilizer) effectively compensate for handshake to avoid blurred shots. A stepping motor delivers smooth and silent autofocus. It includes one aspherical lens.

MOUNT(S): **MICRO FOUR THIRDS** // FOCAL LENGTH: **30 MM (60 MM)** // MAX APERTURE(S) : **F/2.8**
EXOTIC GLASS ELEMENTS: **1 ASPHERICAL** // DIAMETER X LENGTH: **58.8 X 63.5 MM** // WEIGHT: **180 G**

$**479** (LIST) **PANASONIC.CA**

MID-TELEPHOTO

FUJINON X F90 MM F/2 R LM WR

This premium-grade lens has a wide aperture and a rounded diaphragm for pleasing bokeh, making it ideal for portrait photography. It includes 3 ED glass elements to reduce chromatic aberrations and deliver sharp, rich images. Seven seals keeps the lens protected from rain, dust and splashes of water, and the lens can work in temperatures as low as -10 °C.

MOUNT(S): **FUJIFILM X** // FOCAL LENGTH: **90 MM (137 MM)** // MAX APERTURE(S): **F/2**
EXOTIC GLASS ELEMENTS: **3 ED** // DIAMETER X LENGTH: **75 X 105 MM** // WEIGHT: **540 G**

$**1099** (LIST) **FUJIFILM.CA**

PANASONIC LUMIX G 42.5 MM F/1.7 ASPH POWER OIS

This mid-telephoto (85-mm equivalent) lens features a wide maximum aperture, making it ideal for shooting portraits with beautiful defocus. The Power O.I.S system compensates for small, fast movements as well as large, slow ones for stable low-light night or indoors shots. It focuses as close as 31 cm and can also be used for product shots or food photography.

MOUNT(S): **M43** // FOCAL LENGTH: **42.5 MM (85 MM**) // MAX APERTURE(S): **F/1.7**
EXOTIC GLASS ELEMENTS: **1 ASPHERICAL** // DIAMETER X LENGTH: **55 X 50 MM** // WEIGHT: **130 G**

$**499** (LIST) **PANASONIC.CA**

SONY FE 90 MM F/2.8 MACRO G OSS

This full-frame medium telephoto macro lens focuses as close as 28 cm to reproduce objects at 1:1 life-size. Built-in optical image stabilization allows hand-held shooting for sharp images. Advanced optics and Nano AR Coating with a 9-blade circular aperture deliver smooth bokeh. A floating focus mechanism suppresses aberration at all focusing distances.

MOUNT(S): **SONY FE (FULL FRAME)** // FOCAL LENGTH: **90 MM** // MAX APERTURE(S): **F/2.8**
EXOTIC GLASS ELEMENTS: **1 ASPHERICAL LENS, 1 ED (EXTRA-LOW DISPERSION) GLASS, 1 SUPER ED GLASS**
EXOTIC COATINGS: **NANO AR COATING** // DIAMETER X LENGTH: **79 X 130.5 MM** // WEIGHT: **602 G**

$**1349** (LIST) **SONYSTYLE.CA**

ZEISS BATIS 1.8/85

This mid-telephoto lens features 3 special glass elements for superior image quality, a wide maximum aperture for shallow depth of field and optical image stabilization for hand-held available light photography. It offers protection against dust and splashing water. An innovative OLED display makes it easy to read off distance and depth of field even in poor lighting.

MOUNT(S): **SONY FE (FULL FRAME)** // FOCAL LENGTH: **25 MM** // MAX APERTURE(S): **F/1.8**
EXOTIC GLASS ELEMENTS: **3 SPECIAL** // DIAMETER X LENGTH: **78 X 92 MM** // WEIGHT: **475 G**

$1479 (STREET) **ZEISS.CA**

TELEPHOTO

OLYMPUS M.ZUIKO DIGITAL ED 14-150 MM F/4-5.6 II

This compact and lightweight lens features a powerful 10.7x 28-300 mm (equivalent) optical zoom, making it a versatile one-lens solution for wide-angle to super telephoto shots. Its lens design incorporates aspherical, ED and High-Refractive glass to eliminate ghosting and flares. It is also splash, dust and freeze-proof, making it perfect for travel photography in any environments.

MOUNT(S): **M43** // FOCAL LENGTH: **14-150 MM (28-300 MM)** // MAX APERTURE(S): **F/4-5.6**
EXOTIC GLASS ELEMENTS: **1 DSA, 1 ASPHERICAL ED, 1 ED, 3 HR** // EXOTIC COATINGS: **Z.E.R.O**
DIAMETER X LENGTH: **63.5 X 83 MM** // WEIGHT: **285 G**

$399 (LIST) **OLYMPUSCANADA.COM**

FUJINON XC50-230 MM F/4.5-6.7 OIS II

This is a companion lens to the XC16-50 mm F/3.5-5.6 OIS II, with a 4.6x, 76-350 mm equivalent focal length. With those 2 lenses in your camera bag, you would have an effective 14.4x 24-350 mm (equivalent) zoom. It features 1 aspherical lens element and 1 ED lens element, a high-precision motor for quick and silent autofocus, and 3.5-stop optical image stabilization.

MOUNT(S): **FUJIFILM X** // FOCAL LENGTH: **50-230 MM (76-350 MM)** // MAX APERTURE(S): **F/4.5-6.7**
EXOTIC GLASS ELEMENTS: **1 ASPHERICAL, 1 ED** // DIAMETER X LENGTH: **69.5 X 111 MM** // WEIGHT: **N/A**

$499 (LIST) **FUJIFILM.CA**

SONY FE 24-240 MM F/3.5-6.3 OSS

Use this full-frame 10x optical zoom lens to cover an extensive variety of shooting situations: landscape, portraits and telephoto shots. It features built-in Optical SteadyShot (OSS) stabilization for hand-held shooting. It is also sealed against dust and moisture, making it an ideal travel partner when reducing luggage, travelling light and ruggedness are a priority.

MOUNT(S): **SONY FE (FULL FRAME)** // FOCAL LENGTH: **24-240 MM (36-360 MM ON AN APS-C CAMERA)**
MAX APERTURE(S): **F/3.5-6.3** // EXOTIC GLASS ELEMENTS: **5 ASPHERICAL LENSES, 1 ED (EXTRA-LOW-DISPERSION) GLASS** // EXOTIC COATINGS: **NANO AR COATING** // DIAMETER X LENGTH: **80.5 X 118.5 MM** // WEIGHT: **780 G**

$1099 (LIST) **SONYSTYLE.CA**

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The new Milvus lenses from ZEISS.

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FIXED-LENS CAMERAS
SMALL AND SOPHISTICATED, THEY STILL DO THINGS NO SMARTPHONE CAN

By Chad Sapieha

Smartphone cameras continue to chip away at the compact-camera market, and with good reason. Why spend hundreds of dollars on a second device that performs roughly the same function as the one you always have with you and slides into your pant pocket as easily as a wallet? But this argument still fails when you consider point-and-shoot sub-categories tailored to perform in ways no smartphone can yet match.

Enthusiast-grade compact cameras, for example, straddle the line between point-and-shoot convenience and the kind of picture quality you normally expect from entry-level SLRs. They sport quality glass, bigger sensors, and offer a range of shooting modes and manual-control options that even professional photographers can appreciate.

Superzooms, meanwhile, focus on doing a good job of a very specific task at which compact cameras are typically terrible: capturing breathtaking shots of far away scenes and subjects. These relatively compact long-lens shooters are typically favoured by amateur photographers looking to capture crisp pictures of wildlife and fast-moving athletes at a distance, but who don't want to invest in pricey body plus lens systems.

Then there are cameras for extreme adventures. Some are simply designed to take a beating while on hikes or at the beach–the sort of places where you'd rather not risk damaging a vulnerable $600 pocket computer. Others are purpose-built to capture stills and video from the user's perspective by being mounted to helmets, bike handles, or even hunting weapons–not great places to attach your phone.

We've compiled a list of some of the top compact cameras in each of these categories. All you need to do is figure out which type is right for your point-and-shoot photography needs.

ENTHUSIAST

CANON POWERSHOT G1 X MARK II

With a new 12.8-MP 1.5-inch sensor that's 4.5 times larger than standard 1/1.7-inch sensors, this compact is primed to capture terrific detail. High ISO ranging up to 12,800 means the G1 X Mark II does wonders in low-light settings, and quick autofocus makes it a good choice for action shots, too. A new f/2-3.9 lens with equivalent 24-1200 mm range has both a step and a continuous ring for exacting control of settings and focus. Built-in Wi-Fi and NFC complete the package.

$700 (STREET) **CANON.CA**

CANON POWERSHOT G3 X

Versatile and powerful, Canon's top-of-the-line compact is equipped with a 24-600 mm equivalent 25x zoom lens with an aperture range of f/2.8-5.6. It pairs a 20.2-MP 1-inch high-sensitivity CMOS sensor with the company's own DIGIC 6 image processor capable of capturing professional-quality shots in a variety of light settings as well as 1080p video at 60 fps. Traditionalists will appreciate the control ring, wheel, intuitive mode dials, and hot shoe to which an optional electronic viewfinder can be attached.

$1200 (LIST) **CANON.CA**

CANON POWERSHOT G7 X

Smaller than other G-series cameras, this 20.2-MP model with BSI COMS 1-inch sensor and fast 24-110 mm equivalent f/1.8-2.8 and 3-inch tilting touchscreen LCD employs a High Speed AF system with 31 detection points. There's no viewfinder, but additional features include Intelligent Image Stabilization, a DIGIC 6 engine with 14-bit processing, 6.5 fps drive and Wi-Fi with NFC.

$670 (STREET) **CANON.CA**

FUJIFILM XQ2

Available in either pure black or a handsome black with silver accents (for buyers who appreciate a slightly retro look and feel), this affordable enthusiast compact packs a large-for-its-price 2/3-inch 12-MP X-Trans CMOS II sensor teamed with an EXR Processor II for low-noise shooting. Its 4x optical zoom Fujinon lens covers 25-100 mm focal lengths, with a lightning-fast autofocus of just 0.06 s. Video capture is 1080p, 60 fps. Wi-Fi connects to both printers and mobile devices for quick uploads to social media accounts.

$400 (STREET) **FUJIFILM.CA**

NIKON COOLPIX A

This truly compact—Nikon calls it palm-sized—high-end fixed-lens camera is the smallest to employ a DX-format 16.2-MP CMOS sensor. It also features an excellent 28-mm equivalent f/2.8 Nikkor wide-angle lens with optics approaching DSLR-quality. Simple, modern styling and practical controls designed for efficiency rather than showiness should appeal to serious photographers looking for a portable alternative to bulkier system cameras.

$550 (LIST) **NIKON.CA**

OLYMPUS STYLUS 1S

This classically styled compact does a little of everything. Its f/2.8 28-300 mm equivalent lens can reach out up to 10.7x, and its 12-MP BSI CMOS sensor combines with Olympus's TruePic VI image processor to capture sharp images with nice tonal gradation. Users can choose between a 1440k-dot EVF or a 3-inch 1,040,000-dot tilting touchscreen. Video is captured at 1080p and 30 fps, and built-in Wi-Fi makes sharing a snap.

$700 (LIST) **OLYMPUSCANADA.COM**

RICOH GR II

Made for professionals in need of a pocketable compact alternative to their bulkier equipment, this no-nonsense shooter is equipped with a 16.2-MP APS-C CMOS sensor with an optional low-pass filter for relatively low-noise shooting at extremely high ISO up to 25,600. It sports a Ricoh GR f/2.8 28-mm fixed lens and supports up to 4 fps continuous shooting. A classic top dial makes it easy to switch between automatic, manual, full-HD video (1080p, 30 fps), plus a trio of custom programmed modes.

$800 (LIST) **RICOH-IMAGING.CA**

SAMSUNG GALAXY CAMERA SF2

This unusual camera strives to combine the best parts of smartphones and dedicated compact cameras. It offers optical capabilities that outstrip phone-based cameras—such as 21x optical zoom—and combines them with the latest Android operating system and associated apps. Sharing images and video with other handheld devices, PCs, and friends and family on the Web is a piece of cake thanks to Auto Upload, which automatically transfers everything you capture to cloud storage.

$500 (LIST) **SAMSUNG.CA**

SIGMA DP3 QUATTRO

The very definition of niche, the latest version of Sigma's distinctly styled Quattro is equipped with a fixed focal-length 50-mm f/2.8 lens. Its enormous (for the category) APS-C-sized 29-MP Foveon X3 Quattro CMOS sensor captures fine details and rich colours—especially in daylight and bright indoor settings. Plus, its odd but ergonomic design, manual focus ring, and full exposure control options will please old pros. Just keep in mind that it doesn't shoot video and isn't really intended for low-light shooting.

$1200 (LIST) **SIGMACANADA.CA**

SONY CYBERSHOT RX1R II

In a league of its own, the new RX1R Mark II features a 42.4-megapixel full-frame BSI sensor with hybrid phase-detection on-sensor AF. The fixed design of the 35-mm f/2 Zeiss T* lens extends into the body with the rear element very close to the sensor. An innovative variable low-pass filter can be adjusted between fully off and fully on, and low-pass bracketing is also supported. A pop-up XGA-resolution electronic viewfinder is built in, and the LCD is now a variable-angle pivoting type.

$4200 (LIST) **SONYSTYLE.CA**

SONY CYBERSHOT RX10 II

Sony's flagship compact sports a 24-200 mm equivalent 8.3x optical zoom lens with Optical SteadyShot image stabilization and great versatility. Its capacious 20.2-MP 1-inch Exmor RS BSI CMOS sensor delivers great resolution and facilitates 4K video at 30 fps, super slow-motion video at 960 fps, plus simultaneous still image capturing at 17 MP. The 3-inch multi-angle LCD shuts off automatically when you raise the camera to your face to use the crisp Tru-Finder electronic viewfinder for eye-level shooting.

$1600 (LIST) **SONYSTYLE.CA**

SONY CYBERSHOT RX100 IV

A twilight superstar, this robust yet remarkably compact point-and-shoot has a 1-inch 20.1-MP Exmor CMOS sensor with a stacked backside-illuminated design that gobbles up maximum light through its 24-70 mm equivalent lens. It can capture 4K video for up to five minutes, as well as super slow-motion video at 960 fps. The electronic viewfinder is retractable for users who prefer using the versatile 3-inch LCD, which can be spun around for selfies.

$1200 (LIST) **SONYSTYLE.CA**

SUPERZOOM
FUJIFILM FINEPIX S9900W

This affordable far shooter boasts a respectable 50x optical zoom 24-1200 mm equivalent lens backed by a 16.2-MP 1/2.3-inch BSI CMOS sensor. Five-axis image stabilization takes the jitter out of longer shots, and you can snap up to 10 fps in continuous shooting mode. Choose to frame your subjects with either a 3-inch LCD or 920,000-dot electronic viewfinder, depending on the situation. Switch over to video mode to capture 1080i at 60 fps. Built-in Wi-Fi makes uploading and sharing a breeze.

$430 (STREET) **FUJIFILM.CA**

NIKON COOLPIX P900

Reach out and touch distant subjects with the P900's incredible 83x (24-2000 mm) optical zoom. A snap-back zoom button makes it easy to find targets at a distance before jumping straight to super-telephoto position. A variable angle 3-inch LCD provides framing flexibility, or you can just use the 5 mm electronic viewfinder. The 16-MP CMOS sensor produces sharp 1080p video at 60 fps, and a full suite of high-tech extras—including Wi-Fi, NFC and GPS systems—keeps this camera both connected and geolocated.

$670 (LIST) **NIKON.CA**

NIKON COOLPIX S9900

Made for budget-conscious long-lens shoppers, the surprisingly slim S9900 has a respectable 30x (25-750 mm equivalent) f/3.7-6.4 lens that delivers light to a 16-MP 1/2.3-inch CMOS sensor. The ability to adjust aperture and shutter speed comes in handy in situations that demand a manual touch. 1080p video at 60 fps and a special time-lapse mode provide interesting options for moving pictures. It comes equipped with Wi-Fi and NFC for porting photos to phones and tablets, plus GPS to record the exact location of each shot.

$380 (LIST) **NIKON.CA**

OLYMPUS STYLUS SP-100

This camera's EVF with built-in dot-sight is designed to help track quick-moving targets. It pops up and stows away as needed. Its 24-1200 mm equivalent shift-stabilized lens with f/2.9-6.5 aperture range provides good reach, while a 16-MP CMOS sensor delivers class-standard resolution.

$400 (LIST) **OLYMPUSCANADA.COM**

PANASONIC LUMIX DMC-FZ300

It sports a relatively modest zoom of 24x via a 25-600 mm equivalent f/2.8 lens and lower-resolution 12.1-MP MOS sensor, but this durable superzoom will appeal to outdoor types with its splashproof and dustproof body and five-axis hybrid optical image stabilization with tilt correction. Plus, it's one of the few superzooms to offer 4K video capture with the ability to extract any frame as an 8-MP still image.

$600 (LIST) **PANASONIC.CA**

PANASONIC LUMIX DMC-ZS50S

Dubbed a "travel-zoom" camera by Panasonic, the ZS50S is far slimmer than most long lens cameras yet still manages an impressive 30x thanks to a collapsing 24-720 mm equivalent lens. Images and 1080p video are captured on a 12.1-MP MOS sensor, with support for burst shooting at 6 fps. Choose between the 3-inch LCD and 1,166,000-dot electronic viewfinder to frame each shot, and easily upload your work via built-in Wi-Fi.

$515 (STREET) **PANASONIC.CA**

PENTAX XG-1

Featuring many DSLR-type capabilities and controls, this 16-MP camera with a movement stabilized 24-1248 mm equivalent f/2.8-5.6 lens, 3-inch LCD, and electronic viewfinder, allows for shooting full-resolution JPEGs at 9 fps and movies at up to 1080/30p. The contrast-detect AF system and flash are both very versatile. In spite of the 52x zoom it's surprisingly compact and lightweight, tipping the scales at just 567 g.

$220 (STREET) **RICOH-IMAGING.CA**

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SONY CYBERSHOT DSC-HX400B

This 20.4-MP camera is equipped with a 24-1200 mm f/2.8-6.3 equivalent lens and a sophisticated SteadyShot stabilizer. It has a tilting 3-inch touchscreen LCD. Numerous features include a 10 fps drive, 360-degree Intelligent Sweep Panorama mode, and 1080p video. It can also output 4K-quality still images via an HDMI cable.

$450 (LIST) **SONYSTYLE.CA**

RUGGED AND POV ACTION

CONTOUR ROAM3

Built with water and extreme sports in mind, this POV cam is waterproof to 10 m without a case. It has a 170-degree lens with a 270-degree rotating lens assembly equipped with laser alignment to help ensure your frame is properly levelled regardless of how sloppy the mount. It records HD video at 30 fps and can capture 5-MP stills in Quick Photo Mode. Its rechargeable battery lasts up to 3.5 hours.

$315 (STREET) **CONTOUR.COM**

FUJIFILM FINEPIX XP80

Fuji's 16.4-MP sport cam almost looks like a diving accessory, probably because it was designed to be taken into the ocean. It'll survive dives down to 15.2 m and will also withstand 1.8 m drops and winter shooting at -10 °C. Plus, it's capable of point-of-view video capture—1080p at either 60 or 240 fps for a slow-motion effect—thanks to an Action Camera mode designed to work with an 18-mm conversion lens and mount (sold separately).

$210 (STREET) **FUJIFILM.CA**

GOPRO HERO4 SESSION

A significantly smaller take on GoPro's popular action camera, the Session weighs just 75 grams—40 percent lighter than the GoPro Hero4. It's also half the size. That makes it all the more comfortable to wear on your body or helmet while capturing point-of-view 1080p video—including 120-fps slow-motion footage—and 8-MP still images via its ultra-wide-angle lens. Smart features, such as a looping mode that overwrites automatically until you tell it to stop, are just extra proof this camera was made for extreme action.

$500 (LIST) **GOPRO.COM**

ION AIR PRO 3 WI-FI

Among the lighter action cams available (142 g), this one-touch-to-operate camcorder is waterproof to 15 m and captures 1080p video at 60 fps. It can also grab 12-MP stills in bursts of up to 10 shots, or at a much slower rate in time-lapse mode. Its 160-degree field-of-view lens resists fogging up, and the rechargeable battery lasts up to 2.5 hours. Built-in Wi-Fi and 8 GB of free cloud storage makes online sharing simple.

$350 (STREET) **GENTEC-INTL.COM**

NIKON COOLPIX AW130

The 16-MP AW130—capable of 1080p video at 60 fps—is an underwater champ, thanks to a category-leading waterproof rating of 30 m. It's also shockproof to 2.1 m and will keep snapping away down to -10 °C. An Action Control mode allows setting adjustments with a flick of the wrist—handy for operating with gloved hands—while smart features like target-finding and motion-detection make automatic adjustments when you're too busy. A full suite of action extras—Wi-Fi, NFC, GPS and compass—help make the AW130 one of the most comprehensive rugged compacts available.

$380 (LIST) **NIKON.CA**

OLYMPUS STYLUS TOUGH TG-4

The latest in a long line of rugged cameras from Olympus, this colourful compact looks like it can take a beating because it can. It's waterproof to 15 m (it has a special underwater HDR mode), can laugh off 2.1 m tumbles, is capable of withstanding up to 100 kg of force, and will continue to function perfectly at temperatures as low as -10 °C. It takes decent pictures, too, thanks to a 16-MP BSI CMOS sensor capable of recording 1080p video. Wi-Fi simplifies sharing, and GPS and eCompass will keep you on the trail.

$400 (LIST) **OLYMPUSCANADA.COM**

PANASONIC LUMIX DMC-TS6

Panasonic doesn't provide survivability numbers for its rugged shooter, opting instead to simply warrant it waterproof, dustproof, shockproof, and freezeproof. And this 16.1-MP shooter has some very useful features for avid adventurers, including a torch light and underwater mode that naturally enhances colours in underwater shots; a "quad indicator" that provides compass, altimeter, barometer and GPS information as well as panoramic and time-lapse shooting modes. 1080p video plus Wi-Fi, and NFC connectivity round out the package.

$280 (LIST) **PANASONIC.CA**

SONY ACTION CAM MINI HDR-AZ1

With splash protection and SteadyShot image stabilization to minimize shakiness caused by bumps and jiggles, Sony's latest action camera is equipped with an 11.9-MP image sensor, an ultra-wide 170-degree lens to ensure you capture as much of the action as possible, and a stereo mic for dual-channel sound. You can even broadcast video live to the Web via Ustream as you record it. Add Sony's Live View Remote—a wrist-mounted screen with basic recording controls—for $100.

$230 (STREET) **SONYSTYLE.CA**

RICOH WG-M

This 14-MP action cam is submersible to 10 m, shockproof for a 2 m drop, and freeze-proof to -10 °C. It's equipped with a super wide aspherical 160-degree lens (137-degree in Movie mode), a 1.5-inch LCD, and Wi-Fi. The WG-M1 can shoot JPEGs at 10 fps or full HD videos with stereo sound. A large control button makes operation convenient. Accessories include a wrist strap mount, a helmet mount, and a magnet mount.

$230 (STREET) **RICOH-IMAGING.CA**

PHOTO PRINTERS
BRINGING YOUR IMAGES INTO THE REAL WORLD

By David Tanaka

The photographic print has endured, even flourished, in the face of the social media onslaught of billions of images. A nice, big print is an object unto itself, a separate thing to be enjoyed. At some point in your photographic journey, you'll want to make a print.

Photo printers now use sets of six to 12 separate ink cartridges that can print a broader range of colours more accurately and more vibrantly. The basic ink set is cyan, magenta, yellow and black, but photo printers include other hues such as light cyan, light magenta, red, blue and orange.

Pigment printers also have two black inks—photo black and matte black. This is because photo black pigment ink may not look quite the same on matte papers. Most printers include intermediate grey inks too, which improve black-and-white printing overall and tonality in colour prints. Some also apply a clear substance (Canon calls it chroma optimizer, Epson calls it gloss optimizer) on areas of the paper that don't get tinted ink. The result is a seamless, consistent lustre across the surface of the print.

Some printers automatically sense the type of paper being used and adjust the inking for the best result. User-selectable paper profiles have also simplified printmaking. Profiles are readily available for a broad range of papers from printer and inkjet-paper manufacturers.

Over the past several years, the field of dedicated photo printers has narrowed to models from Canon and Epson. Despite different technology approaches, both companies have moved their printers through several generations of development so your printing needs will be well served, whichever brand you choose.

Letter-size photo printers have mostly evolved into multi-function devices and we do not include them in this guide. But they include many of the advanced features of dedicated photo printers so are worth investigating if you don't print larger than 8.5-inches wide.

PIGMENT INK PRINTERS

CANON IMAGEPROGRAF PRO-1000

Canon's new ANSI-C (17 x 22 in. paper) printer uses a 12-cartridge Lucia Pro ink system that includes matte and photo black with separate nozzle system (no switching necessary), two greys, and red and blue. Canon says the ink heads are 50% larger and the inkset provides a 19% greater colour gamut compared to the Pixma Pro 1. A novel Air Feed paper system uses vacuum gripping to reduce skewing.

INK TYPE: **LUCIA PRO PIGMENT-BASED** // CARTRIDGES: **12 INCLUDING CHROMA OPTIMIZER**
BLACK SET: **GLOSS, MATTE, 2 GREYS** // MAX PAPER SIZE: **ANSI-C (17 X 22 IN.)**
SPECIAL MEDIA HANDLING: **MANUAL SHEET FEEDER FOR THICK STOCK** // CONNECTIONS: **USB, ETHERNET, WI-FI** // DIMENSIONS: **72.3 X 43.3 X 28.5 CM** // WEIGHT: **32 KG**

$1599 (LIST) **CANON.CA**

CANON PIXMA PRO-1

The Pixma Pro-1 is Canon's top Super-B (13 x 19 in. paper) printer. The ink cartridges—12 of them—have 155 percent more capacity than the ones on previous Pixma-Pro models, says Canon. The range of colours is noteworthy and includes a red, three greys and a chroma optimizer (the latter improves the finish on glossy papers). The printer is driven by what Canon calls the Optimum Image Generating (OIG) System that analyses each print mode and paper being used and balances ink deposition for the best result.

INK TYPE: **LUCIA PIGMENT-BASED** // CARTRIDGES: **12, INCLUDING CHROMA OPTIMIZER**
BLACK SET: **GLOSS, MATTE, 3 GREYS** // MAX PAPER SIZE: **SUPER-B (13 X 19 IN.)**
SPECIAL MEDIA HANDLING: **MANUAL SHEET FEEDER FOR THICK STOCK, DVD PRINTING**
CONNECTIONS: **USB, ETHERNET** // DIMENSIONS: **70 X 46 X 24 CM** // WEIGHT: **27.6 KG**

$999 (LIST) **CANON.CA**

CANON PIXMA PRO-10

The Pixma Pro-10 is a 10-cartridge (including chroma optimizer) printer that supports Ethernet, Wi-Fi and USB connection methods. Like the Pro-1 the Pro-10 implements the Optimum Image Generating (OIG) System that analyses each print mode and paper being used and balances ink deposition for the best result. It's ready to print a variety of media up to 13 x 19 in. paper stock as well as direct printing onto printable DVD and CD media.

INK TYPE: **LUCIA PIGMENT-BASED** // CARTRIDGES: **10 INCLUDING CHROMA OPTIMIZER**
BLACK SET: **GLOSS, MATTE, 1 GREY** // MAX PAPER SIZE: **SUPER-B (13 X 19 IN.)**
SPECIAL MEDIA HANDLING: **DVD TRAY, REAR SLOT FOR THICK MEDIA**
CONNECTIONS: **USB, WI-FI, ETHERNET** // DIMENSIONS: **69 X 38.6 X 21.6 CM** // WEIGHT: **20 KG**

$799 (LIST) **CANON.CA**

EPSON SURECOLOR P400

The SureColor P400 replaces the R2000 and joins the P600 in Epson's Super-B (13 x 19 in. paper) line-up. It uses the same ink set as the R2000, although rebranded to Ultrachrome HG2 (the cartridges are less expensive but smaller). Included are red and orange inks and a gloss optimizer. The photo black and matte black inks now have their own ink channel, so there is no delay or ink waste in switching between them. The printer also comes with a clip-on roll-paper holder.

INK TYPE: **ULTRACHROME HG2 PIGMENT-BASED** // CARTRIDGES: **8, INCLUDING GLOSS OPTIMIZER**
BLACK SET: **PHOTO, MATTE** // MAX PAPER SIZE: **SUPER-B (13 X 19 IN.)** // SPECIAL MEDIA HANDLING: **ROLL-PAPER HOLDER, PRINTS UP TO 300 CM CONTINUOUS LENGTH, REAR SLOT FOR THICK MEDIA**
CONNECTIONS: **USB, WI-FI, ETHERNET** // DIMENSIONS: **62.2 X 32.4 X 21.9 CM** // WEIGHT: **12.5 KG**

$719 (LIST) **EPSON.CA**

EPSON SURECOLOR P600

The P600 was the first in the SureColor-P family. It uses a new formulation of UltraChrome HD Inks that produce a noticeably deeper black compared to the previous UltraChrome formulation. The P600 led the way in breaking through the length limit of previous Epson printers and all SureColor-P printers can make prints up to three metres in length. Included with the P600 is a clip-on roll paper holder.

INK TYPE: **ULTRACHROME PIGMENT-BASED** // CARTRIDGES: **9** // BLACK SET: **PHOTO, MATTE, 2 GREYS**
MAX PAPER SIZE: **SUPER-B (13 X 19 IN.)** // SPECIAL MEDIA HANDLING: **ROLL-PAPER HOLDER, PRINTS UP TO 300 CM CONTINUOUS LENGTH, REAR SLOT FOR THICK MEDIA** // CONNECTIONS: **USB, WI-FI, ETHERNET** // DIMENSIONS: **61.5 X 37 X 23 CM** // WEIGHT: **16 KG**

$960 (LIST) **EPSON.CA**

EPSON SURECOLOR P800

The SureColor-P800 replaces the Stylus Pro 3880 family of ANSI-C (17 x 22 in. paper size) printers. Like the P600, it uses a new formula for the UltraChrome inks, which improves the depth of the blacks. The autoswitching time between photo and matte inks has been improved to around three minutes, and the amount of ink wasted during the switch has also been reduced. A clip-on roll feeder is available as an extra-cost option, which will accept both two-inch and three-inch roll cores. Although it prints up to 17-inch wide paper stock, it isn't that much bigger or heavier than the P600, so you don't need a big space or an industrial-grade stand.

INK TYPE: **ULTRACHROME PIGMENT-BASED** // CARTRIDGES: **9** // BLACKS: **PHOTO, MATTE, 2 GREYS**
MAX PAPER SIZE: **ANSI-C (17 X 22 IN.)** // SPECIAL MEDIA HANDLING: **REAR SLOT FOR THICK MEDIA, OPTIONAL ROLL-PAPER HOLDER** // CONNECTIONS: **USB, WI-FI, ETHERNET**
DIMENSIONS: **68.4 X 37.6 X 25 CM** // WEIGHT: **19.5 KG**

$1555 (LIST) **EPSON.CA**

DYE PRINTERS

CANON PIXMA PRO-100

The specs on the Pixma Pro-100 are very similar to the Pixma Pro-10, with the notable exception that the Pro-100 uses Chromalife 100+ dye-based inks. Being a dye printer it doesn't require separate matte-black ink and its three-black inkset (black and two greys) will provide good black-and-white printmaking. The Optimum Image Generating (OIG) System introduced on the Pixma Pro-1 has migrated to this model too.

INK TYPE: **CHROMALIFE DYE-BASED** // CARTRIDGES: **8** // BLACK SET: **PHOTO, 2 GREYS**
MAX PAPER SIZE: **SUPER-B (13 X 19 IN.)** // SPECIAL MEDIA HANDLING: **REAR SLOT FOR THICK MEDIA**
CONNECTIONS: **USB, WI-FI, ETHERNET** // DIMENSIONS: **69 X 38.6 X 21.6 CM** // WEIGHT: **19.5 KG**

$499 (LIST) **CANON.CA**

EPSON ARTISAN 1430

The differences have narrowed but if you still prefer the palette of dye-based inks, the Artisan 1430 is worth a closer look. Its print permanence rating is close to 100 years under glass, longer if the print is stored in an album. With dyes you don't run into the same problems printing blacks on glossy vs. matte papers as you do with pigment inks; as a result this model needs just a single black—but it doesn't have intermediate greys.

INK TYPE: **CLARIA DYE-BASED** // CARTRIDGES: **6** // BLACK SET: **BLACK**
MAX PAPER SIZE: **SUPER-B (13 X 19 IN.)** // SPECIAL MEDIA HANDLING: **DVD HOLDER**
CONNECTIONS: **USB, WI-FI** // DIMENSIONS: **61.7 X 33.3 X 22 CM** // WEIGHT: **12 KG**

$299 (LIST) **EPSON.CA**

WHAT'S A STANDARD PAPER SIZE?

Canada, the USA and Mexico use the American National Standards Institute (ANSI) while the rest of the world uses an International Standards Organization system (ISO 216) for standard paper dimensions.

	Metric	Imperial
ANSI A	216 x 279 mm	8.5 x 11 in.
ISO A4	210 x 297 mm	8.3 x 11.7 in.
ANSI B	279 x 432 mm	11 x 17 in.
ISO A3	297 x 420 mm	11.7 x 16.5 in.
ANSI Super B	329 x 483 mm	13 x 19 in.
ISO B3	353 x 500 mm	13.9 x 19.7 in.
ANSI C	432 x 559 mm	17 x 22 in.
ISO A2	420 x 594 mm	16.5 x 23.4 in.
ANSI D	559 x 864 mm	22 x 34 in.
ISO A1	594 x 841 mm	23.4 x 33.1 in.

ARCHIVAL PRINTMAKING

Technically within the professional gallery community "archival" means that an object—say a print—will endure for 100 years without showing signs of deterioration. But as they say in the auto biz, real world mileage will vary.

Archival print ratings, sometimes called lightfastness or permanence ratings can be useful for comparing the relative merits of various paper-ink combinations. However, they are derived under conditions that are specific and quite stringent—and not at all like the wall in your abode or office where a print might actually hang. Without question inkjet technology has taken giant leaps forward in improving print permanence. With the early generations of inkjets, you could see fading occur, sometimes within weeks. Because the technology is just a couple of decades old, we don't have real world cases of a print lasting for 100 years. We'll have to wait until 2115 or so to find out for sure.

IMAGING SOFTWARE
POST-PROCESSING WIZARDRY CONTINUES TO MATURE

By Buyers' Guide Staff

What do photographers want in an image editor? Ease-of-use is always at play, but so is the ability to exert full control at the pixel level. Striking a balance you can live with is the essential challenge.

Even in old-school image editors, the pixel-pushing power is getting easier to use and understand. With each revision of Photoshop, for example, Adobe adds a few more "smart" tools that let us do in a few mouse clicks what would have taken many tedious and demanding steps before.

Consumer electronics has had an influence. You know how to use the touchscreen on your smartphone, so it's not a big stretch to click-to-pick with a mouse on a computer monitor. Many packages for both computers and smart devices use this as the primary method for selecting effects or tools via thumbnails that show a visual preview.

The metaphor of a slider control is also transferable between a computer interface and a tablet touchscreen, so virtual sliders abound in image-editing software. The sliders in workflow suites allow you to adjust most of the colour and tonal parameters. You seldom need to do more.

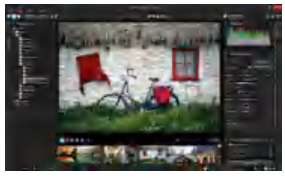
The $1.00 smart device app has had less of an effect on computer software pricing than one might have predicted. Tiers have always existed, with easy, entry-level packages available in the $50-$150 price range, and more advanced packages costing multiple hundreds of dollars. What has changed is the rise of the subscription model. Adobe started the trend with Photoshop CC last year, and has extended it to Lightroom. Other companies are now offering their software by subscription. Following are the latest updates to image-editing packages for your computer.

ACDSEE ULTIMATE 9

Version 9 represents a major upgrade for one of the first consumer-oriented image management and workflow packages. Version 9 has added adjustment layers to its non-destructive editing toolkit, an Actions scripting tool to automate repetitive procedures, a de-haze similar in concept to the one introduced in the latest versions of Photoshop and Lightroom and support for 4K resolution monitors. Its catalogue will bring in Lighroom catalogues with keywords and other ratings intact.

US$149.99; US$8.24/MONTH (WEB) **ACDSEE.COM**

AFTERSHOT PRO 2



After a major update last year, the changes to AfterShot Pro 2 have been incremental. The HDR function that originally debuted only in the Windows version is now offered in the Mac and Linux versions too. Like Adobe Lightroom, AfterShot Pro 2 is an end-to-end image handling application with modules for cataloguing, Raw processing, non-destructive editing and outputting. It implements layers, which is unusual for a Raw workflow suite, and equally unusual is its availability for Linux, in addition to Mac and Windows.

$79.99 (WEB) **COREL.COM**

CAPTURE ONE PRO 8

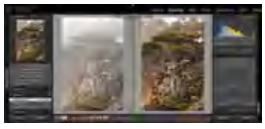
This Raw workflow and tethering solution has benefited from continuous refinement and now sits at version 8.3. For image management you can use Sessions based on projects or a more traditional Catalogue method of organization. Capture On Pro shines when it comes to tethered shooting and a few new features include more extensive control of camera settings from the computer, composition grids including Fibonacci Spiral and Golden Ratio proportions, and the ability to round-trip an image to an external editor.

US$300; US$15/MONTH (WEB) **PHASEONE.COM**

DXO OPTICS PRO 10 ELITE

Optics Pro has a lot of advanced features that set it apart. Its lens correction modules benefit from DxO's extensive lab-based lens testing programme. A new module called Lens Softness improves the micro-contrast and hence "crispness" of a lens. It introduced an advanced noise reduction tool called Prime, and the latest versions improve its speed. Before others introduced the de-haze tool Optics Pro had ClearView.

US$199 (WEB) **DXO.COM**



LIGHTROOM CC2015 / LIGHTROOM 6

Adobe still sells a standalone version of Lightroom (as version 6), but it's pushing potential customers to the CC subscription model by making it affordable and easy to download, plus making two new features—DeHaze and Black and White sliders in Local Adjustments—available only in the CC2015 variant. LR6 does get some of the new features, including panorama and HDR merge, face recognition and GPU harnessing for extra performance (depends on your hardware).

US$9.99/MONTH, INCLUDES PHOTOSHOP (WEB) **ADOBE.COM**

PAINT SHOP PRO X8 ULTIMATE

The Ultimate edition is a better buy than standard because for $20 more you get a lot more including the AfterShot 2 Raw processing package, Perfectly Clear licensed from Authentic and PerfectEffects licenced from On1 and a collection of brushes, textures and backgrounds. PaintShop Pro itself is a mature image editor that started life as a less expensive alternative to Photoshop.

$99.99 (WEB) **PAINTSHOPPRO.COM**

PHOTOSHOP CC2015

Photoshop serves a broad market but each revision includes a couple of treats for photographers. Like Lightroom CC, this version of Photoshop gets the DeHaze tool, which works in the Camera Raw panel. In Photoshop CC2015 there are more tools with Content Aware intelligence including panorama stitching, the Move tool, and the Extend with scaling tool. The Blur gallery has a couple of new tools, and the healing and patch brushes work faster. The subscription price includes Lightroom CC and other Creative Cloud benefits.

US$9.95/MONTH, INCLUDES LIGHTROOM (WEB) **ADOBE.COM**

PHOTOSHOP ELEMENTS 14

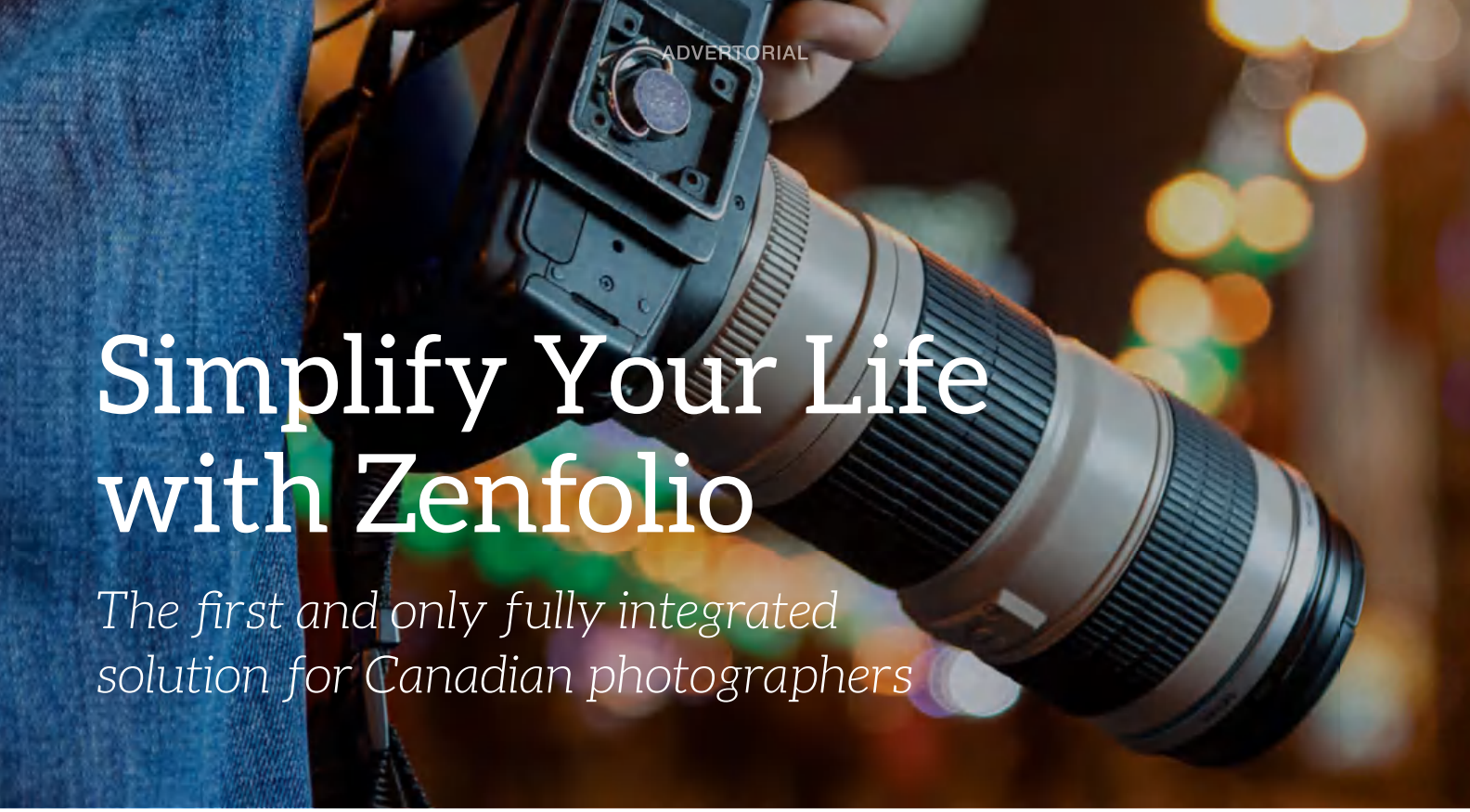
Adobe continues to enrich the three faces of Photoshop Elements with enhancements to the Quick, Guided and Expert editing modes. Quick mode gets a new Smart Looks preview based on the content of a photo and there are a few new Guided Edits and the output panel allows direct access to social media sites. New are haze-reduction and shake-reduction processes. Elements Organizer also gets some enhancements, including a scrub view that lets you page through a stack of thumbnails.

$100 (STREET) **ADOBE.COM**

SILKYPIX DEVELOPER STUDIO PRO 6

You may already have encountered a light version of SilkyPix since some camera makers include it in the box. The Studio Pro edition is a far more capable package, and Version 6 builds on a solid foundation with improvements in the noise-reduction and skin-smoothing (beautification) modules, a more capable burn-and-dodge control, and soft proofing.

US$249 (WEB) **SILKYPIX.US**



Simplify Your Life with Zenfolio

The first and only fully integrated solution for Canadian photographers

MEET TIREE DAWSON:

Lake District-based commercial, food, portrait and wedding photographer, marketing executive, caterer and mother of two, shooting 72 weddings just last year. And as busy as she is, the talented multitasker isn't the least bit tired. "Rather than being exhausted doing these things, I actually get more energy from it," she says. Her secret weapon? The photo industry's no. 1 voted photo hosting and e-commerce solution, Zenfolio. She relies on the platform as her go-to solution to beautifully display her images online and keep things organized.

"I literally could not run my photography business without Zenfolio," she says. So what makes this online platform such a success for professional photographers? It's the all-in-one solution to present your photos, keep everything in one place and sell more.

ZENFOLIO IS VOTED NO. 1 IN THE INDUSTRY.

Tens of thousands of photographers have gladly switched to Zenfolio over the years because of its award-winning service. Just last year, Zenfolio took home Best Photo Service in the 2015 TIPA Awards, and Best Customer Support and Best Professional Website Provider by The Societies. The site has grown rapidly and has more than 100,000 active users.

"I signed up in April 2009 and have not looked back," raves customer Martin Hart. "The look and feel, as well as the support, has been excellent. Compared to the competitors the quality of the onscreen images always seems to be considerably better."

Sources:

Photographers Corner: Behind the Weekend Warrior
Case Study: How to Grow Your Business with Social Media
Zenfolio Testimonials

ZENFOLIO TEAMS UP WITH THE BEST LABS.

Since day one, Zenfolio has partnered with top-quality labs, so that Zenfolio users can offer hundreds of products on their websites. Just recently, the service has partnered with Pikto, Canada's leading print lab. This makes Zenfolio the first and only provider fully servicing photographers in Canada. Now Canadian photographers can sell prints and products to their local customers in CA$ and display websites in their local language.

ZENFOLIO IS YOUR GREATEST BUSINESS PARTNER.

Just about anyone can get a pretty website these days, but how about one that works with you? With endless features, an entire Support Center to help get you set up, frequent webinars and marketing tools such as email and Visitor Sign-In, you will create an entire business, not just a website, with Zenfolio.

"I was nowhere before Zenfolio, period," says wedding and portrait photographer, Mike Anderson. After trading his cubicle for a camera, Anderson found Zenfolio, which allowed him to build the brand and message on his website that interacted with all of his social media networks, causing his photography business to explode as a result.

"I went from shooting four weddings a year to 47 weddings in 2013, 28 in 2014, 44 booked this year so far, and 22 booked already for 2016," he says. He now has worldwide followers that he attributes to Zenfolio and social media.

zenfolio

See why more than 100,000 photographers use Zenfolio. Try it out free with a two-week trial today at www.zenfolio.ca.

FLASH UNITS AND ACCESSORIES
A BIT OF THE SUN FOR YOUR CAMERA BAG

By David Tanaka

Carrying an auxiliary flash unit is like having a bit of Ol' Sol at your beck and call. If you've been intimidated in the past, be bold: flash photography is easier and more versatile than ever. With intelligent-TTL metering, for example, the camera's metering system needs just fraction of a second to do the math for you, and then set the flash output for an accurate exposure.

An auxiliary flash doesn't have to sit on the camera hot shoe, which means you can change its direction relative to subject and camera positions for smashing effects. Wireless-flash units are increasingly common. Sometimes you'll need a separate wireless trigger at the camera, but many cameras have that function built in. Barring that, a lot of third-party solutions are available.

Accurate flash metering, the ability to move the light around—why not make it a hat trick with tools to control the quality of light? Flash modifiers have trickled down from the studio. They do the same things but are right-sized to work with auxiliary-flash units, which tend to be smaller and less powerful than studio strobes. Whatever you can get for a studio strobe you can probably also find for an auxiliary-flash unit—umbrellas, diffusers, reflectors, softboxes, octogons, flags, gobos, filters, etc.

FLASH UNITS

CANON SPEEDLITE 430EX III-RT

The 430EX III-RT sits one position down from the ruling 600EX in Canon's Speedlite family. Nevertheless, it has impressive power ratings (GN43). The zoom head covers 24-105 mm focal lengths and a built-in diffuser extends the wide coverage to 14-mm focal length. The head tilts up 90 degrees and rotates through 330 degrees. The unit supports both radio frequency and optical wireless communication. It also has a number of user-definable functions.

$389 (LIST) **CANON.CA**

NIKON SPEEDLIGHT SB-500

This is one of the smaller flash units in Nikon's stable, but it has good power (GN24), a tilting, swivelling flash head, and incorporates an LED continuous light for video. It also supports the Nikon Creative Lighting System and can be used as a wireless-remote unit or as a master unit to control other wireless units.

$290 (STREET) **NIKON.CA**

PENTAX AF201FG

The AF201FG is weather sealed which is unusual for an entry-level model. It has a tilting (but non-swivelling) head, is powered by two AAA batteries and weighs just 141 grams. It manages a GN rating of 20 and supports Pentax's P-TTL intelligent-flash system.

$180 (STREET) **RICOH-IMAGING.CA**

SONY HVL-F32M

Powered by two AA cells and weighing just 235 grams, the HVL-F32M packs a lot of power (GN 32) and versatility into its tidy dimensions. The flash head can be pointed up, down or rotated through 270 degrees. It includes a wide-angle diffuser for improved lighting with 24-mm lenses. The unit also can be triggered wirelessly.

$270 (STREET) **SONYSTYLE.CA**

FLASH ACCESSORIES

GARY FONG LIGHTSPHERE COLLAPSIBLE PORTRAIT KIT

Built around a new mounting system, the portrait kit includes a Lightsphere Collapsible Generation Five, Speed Snoot with PowerGrid, WhiteDome, GrayDome, and an instructional DVD. A carrying case is included. Other kits are also available for specific applications like commercial and fashion.

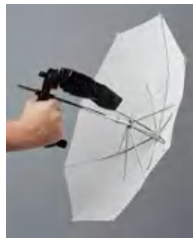
$180 (STREET) **GENTEC-INTL.COM**

HONL PHOTO HOLLYWOOD FILTER KIT

The Honl Photo Hollywood Filter Kit will help replicate classic film looks. Five colours of gels are included (two of each): Steel Green, Rose Purple, Pale Lavender, Smokey Pink and Follies Pink. The reusable gels attach to your flash unit via the Honl Speed Strap, which you need to buy separately (around $15). Honl makes other colour-filter kits for approximately the same price.

$25 (STREET) **HONLPHOTO.COM**

LASTOLITE BROLLY GRIP KIT WITH TRIFOLD UMBRELLA



If you don't have a crew the Brolly Grip, designed for one-handed use, will come in handy. It's basically a handgrip that holds an auxiliary-flash unit and a shoot-through umbrella in correct alignment. You can buy it a la carte but this variation includes a TriFold (it folds up smaller than a regular umbrella) shoot-through umbrella. A carrying bag is included.

$65 (STREET) **GENTEC-INTL.COM**

LASTOLITE COLLAPSIBLE BACKGROUND

This reversible (white/grey) background folds down to a 72-cm disc, but opens to a 150 x 180 cm background, big enough for individual or small group portraits. Lastolite makes other colour combinations including chromakey, and other sizes, as well as versions with trains that allow a seamless backdrop on full-length portraits.

$230 (STREET) **GENTEC-INTL.COM**

Accessorize your accessories

We're much more than a camera store. At Vistek, we carry the widest assortment of photo accessories including top-name lenses, including Canon, Nikon, Sigma, Tamron, Tokina and Zeiss. We also carry a huge selection of lighting accessories from such leading manufacturers as Elinchrom, Profoto, Illumi, Mantis, Lastolite and LEDGO, as well as a wide array of tripods from Benro, MeFoto, Induro and Manfrotto. At Vistek, you get the products, the brands, and an incomparable selection of photo accessories, including camera bags from Tenba, Lowepro and Benro, and virtually everything you need to take your photography to the next level.

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OPUS EASY GO BARN DOOR

Barn doors for a portable flash? Sure, this solution is part of the Easy Go system that also includes snoot, reflector dish and soft box ($40 each). You'll also need a $20 Easy Go adapter—a housing that fits over the flash head and holds the light modifier. The adapters come in different sizes to fit a variety of flash units.

$30 (STREET) **NADEL.CA**

POCKETWIZARD PLUSX TRANSCEIVER

This brand is synonymous with "what the pros use," which might cause some people to think complex and expensive. With the PlusX, PocketWizard addresses both. First, at $110 it is quite affordable (although you'll need two—one at the camera and one at the flash). Second, it is relatively simple to set up—connect one to the camera, one to the remote flash, and set them to the same channel. The PlusX is also compatible with other PocketWizards.

$110 (STREET) **DAYMEN.CA**

RAY FLASH 2

The second-generation Ray Flash 2 contains no electronics, just a sophisticated system of diffusers that spreads the light evenly around a donut-shaped reflector. There's an opening where you poke the flash head, and a channel that's designed so that you can mount the flash on the camera hot shoe but orient the ring light so that it's properly encircling the lens. Two adjustable versions—long and short—accommodate a wide range of camera-flash combinations.

$180 (STREET) **REDRAVENPHOTO.COM**

ROGUE FLASHBENDER 2 PORTABLE LIGHTING KIT

This kit lets you modify up to four flash units for a variety of situations. Included are second-generation (FlashBender 2) large and small reflectors, large and small diffuser panels, a stacking grid system with grid gels and a set of filter gels. A carrying bag is also included. The components are also available individually.

$250 (STREET) **REDRAVENPHOTO.COM**

ROTOLIGHT CREATIVE COLOUR KIT V2

This kit includes one RL48-B Stealth LED ring light head, a stand adapter and filters. The LED light is quite efficient: it operates on three AA batteries and pumps out the equivalent of a 100-watt incandescent bulb. A Colour FX Kit includes a set of Lee colour temperature correction filters along with 10 special-effect filters. Rotolight offers other kits, or you can buy the RL48 light head by itself.

$160 (STREET) **GNIGAMI.CA**

TRIGGERSMART KIT

This remote triggering kit can use visible light flashes, infrared light or sound to fire the camera shutter. The main component is the MCT-1 Controller which connects the camera to the triggering sensor, and also allows control over sensor variables such as triggering delay and the input sensitivity. Included in the kit are the MCT-1 controller, infrared transmitter and receiver, light intensity receiver, sound sensor, controller and trigger cables and two mini tripods.

$360 (STREET) **REDRAVENPHOTO.COM**

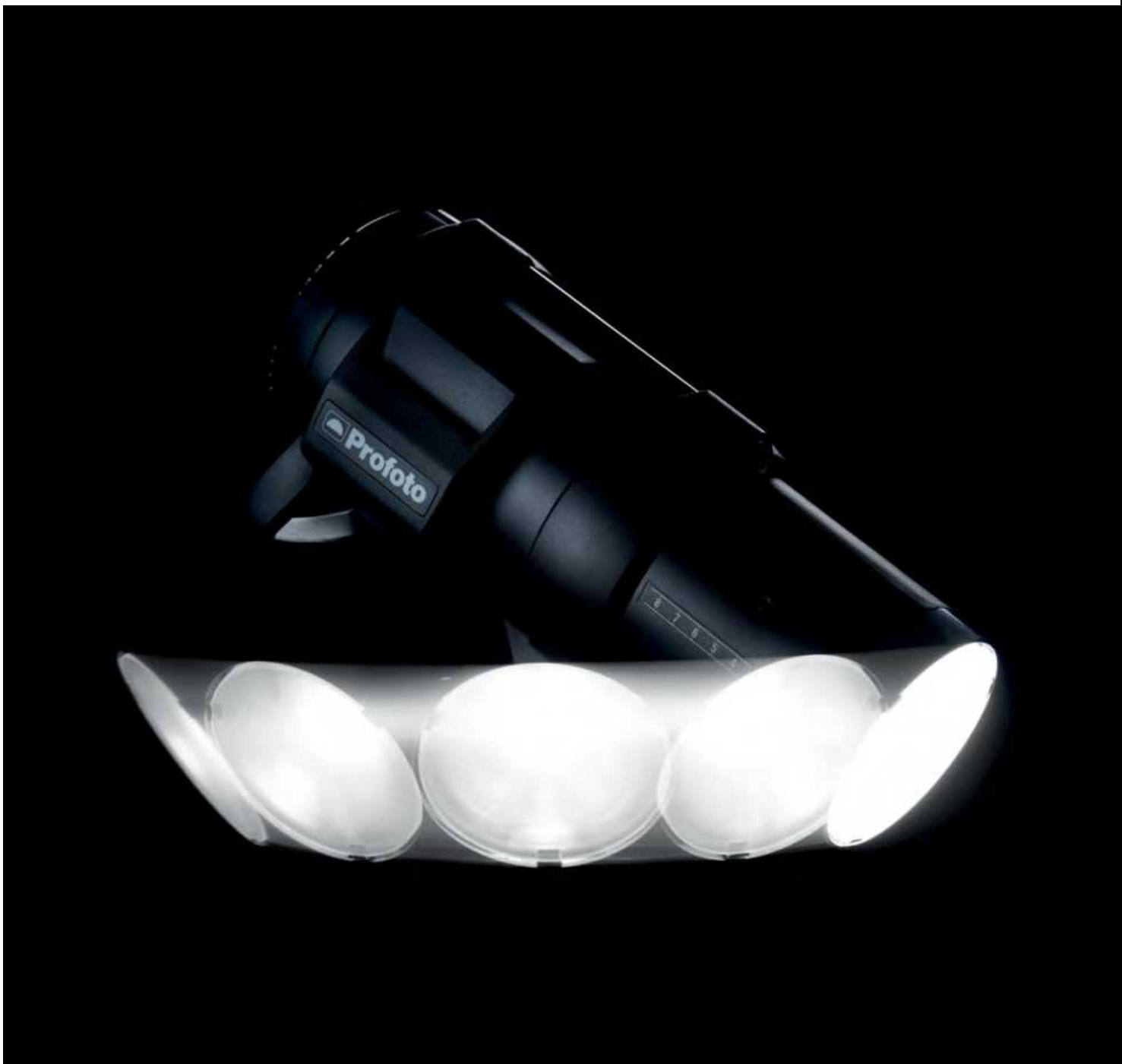
Profoto
ARE YOU
READY TO GO
OFF-CAMERA?

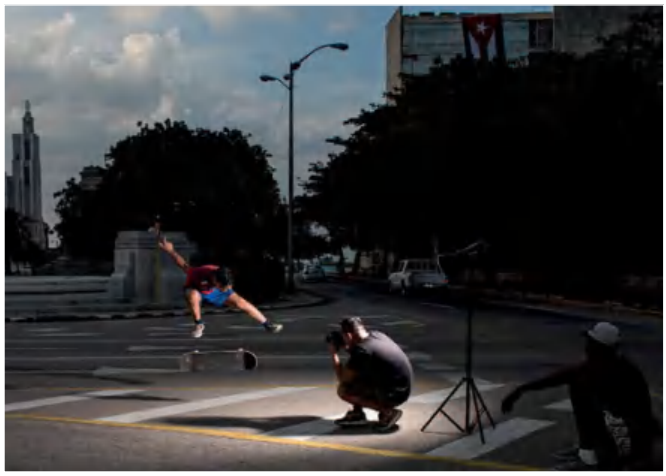
OFF-CAMERA FLASH

Taking your flash off-camera marks a milestone on your journey to becoming a great photographer. It means you are ready to take control and shape light. You are no longer content simply depicting things. You want to create them yourself.

Now, there are many flashes out there that can be placed off-camera. But there is only one Off-Camera Flash system. No other solution will make this transition as easy, while at the same time providing you with such creative freedom. Flip these pages and we will explain why.

PHOTOS: DAVID BICHO





THE B1 & THE B2

Since its release in 2013, the Profoto B1 has taken the photographic community by storm. With TTL, with HSS, without any cords, and with 10 times the power of the average speedlight, the B1 makes great light easy.

Shooting with the Profoto B2 is shooting with all options at hand. Use it on or off-camera. Carry it with you or put it on a stand. Use it on its own or together with one or several B1 Off-Camera Flashes and Light Shaping Tools.

See an Off-Camera Flash in action: profoto.com/offcameraflash

WITH TTL

All Profoto Off-Camera Flashes offer full TTL operation with both Canon and Nikon cameras.

Canon shooters attach the Profoto Air Remote TTL-C to their camera's hot shoe, Nikon shooters the Profoto Air Remote TTL-N. Then point and shoot, and the off-camera flash will automatically adjust its light output to provide you with the perfect exposure.

It is as easy as it sounds.

PHOTO: DAVID BICHO

PHOTO: BRIAN MARCUS

THE AirTTL SYSTEM

The Profoto Off-Camera Flash system is tied together by the wireless radio system AirTTL. With TTL the off-camera flash will automatically adjust its light output to provide you with the perfect exposure.

For more precise control, switch to Hybrid Mode. This allows you to first shoot with TTL to get a technically perfect exposure, and then switch to Manual Mode with the same readings and settings and do whatever creative adjustments you feel like doing. It is a huge time saver.

WITH EASE

Profoto Off-Camera Flashes make light shaping easy. With TTL and intuitive buttons and controls, they allow you to forget what is behind the camera and focus on what is in front of it.

Since the system was designed with as few parts as possible, you can forget about struggling with tons of gear. One camera, one flash, one remote and one Light Shaping Tool – that is all you need. And if you want to scale things up you can do that too, with ease.

PHOTOS: DIXIE DIXON

HIGH WEDDING FASHION IN AN OLD, DUSTY MILL

The term 'location' can mean warm, sunny days under clear blue skies or a cold, damp warehouse with no place to plug in the lights. For photographer Dixie Dixon, a recent high-fashion bridal shoot at the McKinney Cotton Mill in McKinney, Texas, took the latter track. Built in 1910 and shuttered in 1969, the structure has seen better days.

"The place is huge and there are hardly any outlets," says Dixie. "There wasn't much in the way of heat either, and the drafty chill of the overcast day could be felt throughout the building. They couldn't do much about the ambient temperatures, but they could do something about the ambient light. Without wasting time they began setting up their lights.

After assessing the situation Dixie decided to make use of the cooler, diffused ambient window light that filled the room and mix it with the neutral tonality of her flashes. For a main light they used a Profoto B1 Off-Camera Flash with an Umbrella Deep White S, which Dixie finds 'soft enough yet contrasty enough' to capture the details of the gown and flattering skin tones.

She then added a second Profoto B1 with a Softlight Reflector White as a rim light. Finally, a bare-bulb B1 was set up facing the camera to backlight the strings of small crystals that Dixie suspended in front of her lens to create the random, out-of-focus specula highlights that add a playful dash of mystery into the image.

Shooting with a Nikon D810 with a Nikon AF DC-Nikkor 135mm/f2.0D lens and an Air Remote TTL-N for TTL and wireless manual control, the final exposure were set to 1/200th-second at f/4.0, ISO 200.

"My assistants really love the B1s," laughs Dixie. "They're easy to travel with and the batteries seem to last forever even when shooting all day long. The Light Shaping Tools are easy to maneuver, and they set up and break down quickly, which is especially important when you're shooting models in cold, drafty cotton mills."

Watch the video from the shoot at: profoto.com/offcameraflash
See more of Dixie's work at: www.dixiedixon.com

WITH SPEED

You can never know when that perfect moment is going to happen right in front of your lens. The only thing you can do is to always be prepared. That is why speed is important.

Profoto Off-Camera Flashes are fast and will easily keep up with your camera, shooting at speeds of up to twenty flashes per second. Speed also equals short flash duration. With an off-camera flash, you will not only be able to capture the moment, you will also be able to freeze it in time with absolute sharpness.

PHOTOS: MICHAEL MUELLER

HOW MUELLER KEEPS HIS COOL AT -20°C

So you think your last shoot was challenging? Well, try shooting on top of a snowy alpine summit in -20°C with screaming winds, occasional fog and clouds with snowfall. "The client wanted images in the same style as car ads," says Michael Mueller – fearless photographer and dauntless adventurer in equal measures. "They wanted clean, super perfect images with blue skies and white mountain tops.

Being a brand for serious athletes, it was also important that the images showed a real challenge. We couldn't make it easy for ourselves. We had to climb high and shoot real athletes doing real things."Said and done. Michael and his team packed their bags and went to Pontresina in the Swiss Alps. With them they brought Profoto B1 Off-Camera Flashes, Profoto TeleZoom Reflectors and Profoto Zoom Reflectors.

"The weather was far from ideal," says Michael. "It was very unstable. One minute it was blowing up to a storm, the next it was so foggy you couldn't see more than 20 meters in front of you. We had just tiny windows of time when the skies cleared and we could shoot. In three whole days we got only five hours worth of shooting!"

So Michael and his team had to work fast to seize the opportunities they had. Lights were quickly placed far from the subjects not to be shown in frame. TeleZoom Reflectors – which are great at throwing lots of light over long distances, were added to the lights furthest away. Zoom Reflectors were added to the closer positioned lights, allowing the team to zoom and shape the light not to hit the highly reflective snow cover.

On a final note, anyone who has experienced their cellphone battery suddenly die at below zero temperatures is probably curious to know how the flash batteries survived the extreme conditions.

"I can let you in on the secret," laughs Michael. "We went to the supermarket and got some plastic bags for storing frozen food. We put the spare batteries in these, together with ordinary ski boot heaters. The batteries inserted into the flashes, on the other hand, got warm simply by being used. In fact, we didn't use most of the spare batteries. I was quite impressed by that."

Read the full story at: www.profoto.com/offcameraflash
See more of Michael's work at: www.kme-studios.com

WITH POWER

Ever been frustrated by the fact that a clear sky equals bad weather for photography? Or perhaps you have experienced the opposite – not enough light to get the shot you want?

Neither is a problem with Profoto Off-Camera Flashes. At 5-10 times as powerful as the average speedlight, they enable you to overpower the sun on a sunny day as well as light up larger backgrounds and areas. If that is not enough, switch to High-Speed Sync (HSS) Mode and get that perfect deep blue sky even when shooting with large apertures.

PHOTOS: SAL CINCOTTA

AT THE GREAT WALL WITH SOME GREAT LIGHTS

Wedding photographer Sal Cincotta knows a great location when he sees one. The first time he visited the Great Wall in China, he knew he would one day return, this time with cameras, lights and a plan.

Far from a romantic journey, Sal describes the trip to the Great Wall as a "boat, plane, train, trolley, cab, and lots of walking sort of deal. It isn't near anything. It's extremely remote. You have to pack light and need to understand that you're not going to be carrying more than about 20kg of gear with you."

One thing Sal has learned over the years is that he doesn't need big lights. He needs power. "The Profoto B2 Heads are about the same weight and mass as my speedlights, but they output 4 to 5 times the light," he says.

Sal and his assistants also benefited from the fact that all OCF Light Shaping Tools packs away equally well. "We had one backpack for the lighting, and the other backpack for the cameras and everything else," says Sal.

The logistics of capturing these images were not the easiest. In addition to a sun playing peek-a-boo with the clouds as it dipped towards the horizon, there was a constant stream of pedestrian traffic with few breaks in the flow.

"The idea of setting up stands and holding up traffic while you're busy yourself calling out flash readings is totally out of the question," says Sal.

Sal and his team solved this by having the assistant hold a Profoto B2 Head outfitted with an OCF Softbox 2x3' just out of picture range. Shooting in TTL Mode, Sal captured the full series of images using a Canon EOS-1DX equipped with an Air Remote TTL-C for fully automatic, wireless control. He used a Canon EF 50mm/f1.2L USM lens. The exposure was in most cases set to 1/125th-second at f/8.0. The ISO was set to 500.

"The TTL in combination with the 250Ws of power that the B2 puts out is unprecedented," says Sal. "It's made my life as a photographer so much easier."

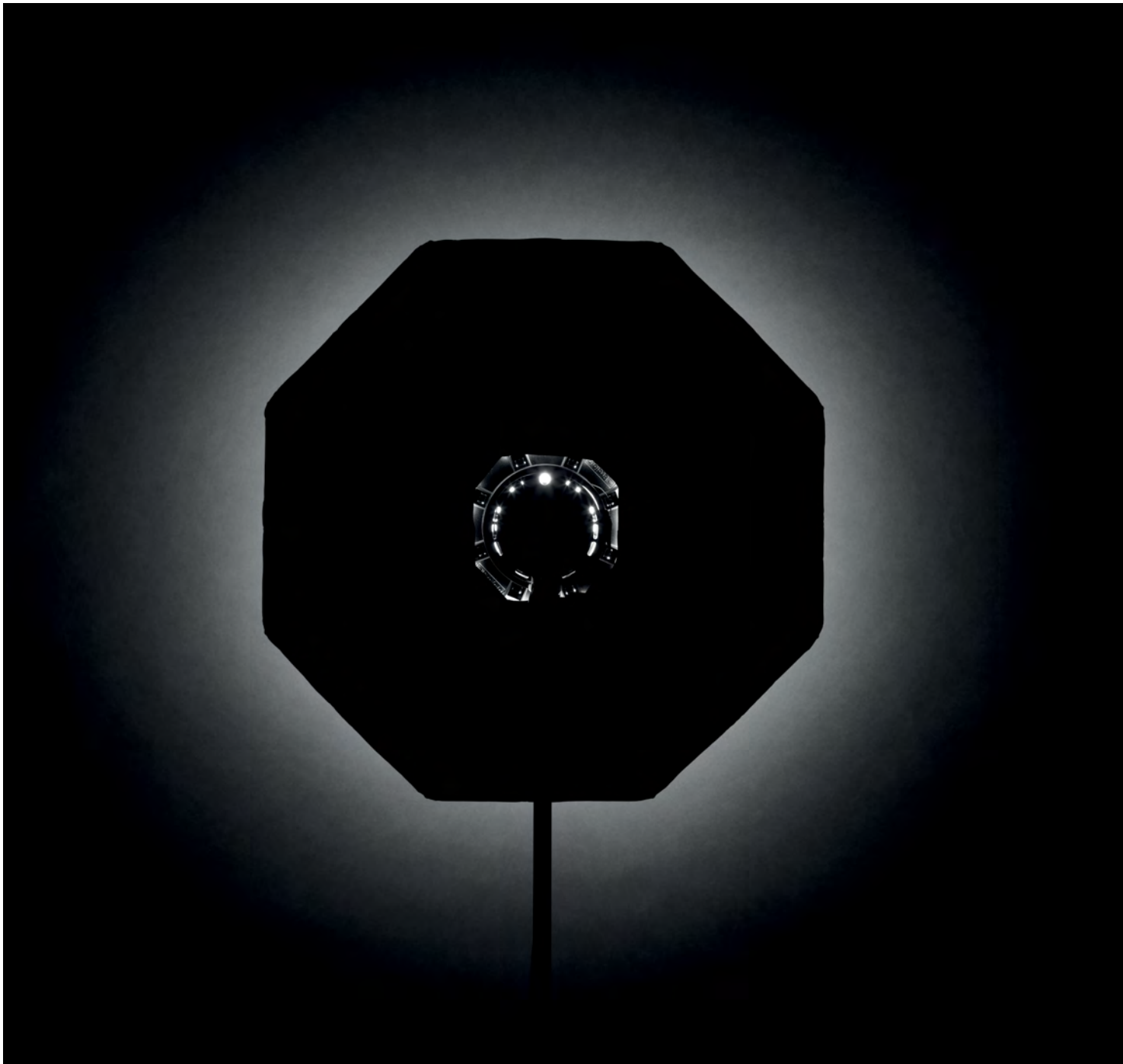
Watch the video from the shoot at: profoto.com/offcameraflash
See more of Sals's work at: www.salcincotta.com

WITH LIGHT SHAPING

Profoto's Off-Camera Flashes have built-in reflectors that create a wide and even light spread that stands well on its own. But that is only the start. The real magic happens when you add a Light Shaping Tool.

There is an assortment of compact and portable OCF Light Shaping Tools, tailor-made for on-location photography. In addition, there are more than 150 Profoto Light Shaping Tools to choose from. With the Profoto Off-Camera Flash system, light shaping is easy and limitless.

PHOTOS: DAVID BICHO



A FEW POPULAR TOOLS

OCF Softboxes - Creates a soft and flattering light. Available in four models: strip, square, rectangular and octagonal. Fast, lightweight and super easy to set up. Optional softgrids control the light spread.

OCF Grid Kit - Attach any of the three grids included in the kit in front of the off-camera flash to reduce its light spread to either 10°, 20° or 30°.

OCF Snoot - Drastically reduces the light spread to create a crisp and direct light with almost no spill light.

OCF Barndoor - adjust the four barn doors individually, rotate the entire tool 360° on the flash head, and control and shape light in an almost infinite number of ways.

Umbrella Deep S & M - small and handy umbrellas with a deeper shape for a broader range of possibilities. Available in white, silver and translucent.

Collapsible reflectors - shape sunlight or bounce flash light. Light shaping in its most uncomplicated form!

View all the light shaping tools on profoto.com/offcameraflash

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Expertise & Customer Service by Authorized Dealers
Buying local ensures that you experience top-notch expertise and customer service provided by our authorized Profoto dealers across Canada.

Warranty and Servicing
Products purchased locally will have a 2-year manufacturing warranty while those purchased abroad will not be serviced by Profoto Canada. We have qualified technicians across the country with service stations in Toronto, Montreal and Calgary.

Electrical Safety Standard
All Profoto Canada products are field inspected and approved by the Electrical Safety Authority (ESA) and by the Standard Council of Canada (SCC). According to the SCC, all products with a cord must pass SCC regulation. Insurance companies will not compensate for damages unless all electrical products are approved with the sticker below:

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Many imported products from the US do not have this SCC approval putting you at risk in terms of safety and liability. Failure to comply with these rules and regulations is an offence punishable by a substantial fine and/or imprisonment.

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Tel: 780-484-0333

Vistek Calgary
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Tel: 403-244-0333

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Tel: 204-942-8335

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Tel:514-274-6577

Photo Service
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Tel: 514-849-2291

Royal Photo
2106 Boulevard Rosemont, Montréal, QC, H2G 1T4
Tel: 514-273-1723

ONTARIO

B3K Digital
250 Carlaw Ave. Unit 102, Toronto, ON, M4M 3L1
Tel: 416-628-8044

FilmPlus Photo Supply
327 Symington Ave, Toronto, ON, M6P 3X1
Tel: 416-535-3747

Henry's Downtown (Church St)
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Tel: 416-868-0872

Henry's Ottawa (Bank St)
267 Bank St., Ottawa, ON, K2P 1X5
Tel: 613-232-5368

Henry's Mississauga
5027 Hurontario St., Mississauga, ON, L4Z 3M2
Tel: 905-568-1922

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Tel: 905-593-1777

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Don's Photo
1902 8th Street East, Saskatoon, SK, S7H 0T7
Tel: 306-934-3111

Profoto®
The Light Shaping Company™

TECHNICAL DATA

B1 500 AirTTL
Max energy: 500Ws
Energy range: 9 f-stops (2-500Ws)
Recycling time: 0.1-1.9 (Quick burst up to 20 flashes/second)
Max modeling light (W): 20W LED (Output equivalent to 70W Halogen)
Flash duration Normal mode (t0.5): 1/11,000s (2Ws) - 1/1,000s (500Ws)
Flash duration Freeze mode (t0.5): 1/19,000s (2Ws) - 1/1,000s (500Ws)
Guide number @ 2 m, 100 ISO with Magnum Reflector: 45 2/10
Input power supply: Exchangeable Lithium-Ion Battery 14.4V/3Ah
Battery capacity: Up to 220 full power flashes
Radio sync & control: Yes, built in AirTTL supporting wireless sync, control and TTL (Requires Air Remote TTL. Sold separately.)

B2 250 AirTTL
Max energy: 250Ws
Energy range: 9 f-stop (2.0-10.0 ; 1/256-1/1)
Recycling time: 0.03-1.35 s (Quick burst up to 20 flashes/second)
Flash duration Normal mode (t0.5): 1/9,300 s (1Ws) - 1/1,000 s (250Ws)
Flash duration Freeze mode (t0.5): 1/15,000 s (1Ws) - 1/1,000 s (250Ws)
Guide number @ 2m / 100 ISO with Magnum Reflector: 32 2/10
Battery capacity: Up to 215 full power flashes
Radio sync & control: Yes, built in AirTTL supporting wireless sync, control and TTL. (Requires Air Remote TTL. Sold separately.)

B2 HEAD
Modeling light: LED 9W (Equivalent of 50W Halogen)

AIR REMOTE TTL-C & AIR REMOTE TTL-N
Frequency band: 2.4 GHz
No. of Channels: 8 (1-8)
Wireless range: Up to 300 m / 1,000 ft
Power Input: 2xAAA Alkaline
Battery Life: Up to 30 hours
Weight: 90 g (3.2 oz) including batteries
Dimensions: 77 x 60 x 40 mm (3.0 x 2.3 x 1.6'')
Air Remote TTL-C connections: Canon hot shoe
Air Remote TTL-N connections: Nikon hot shoe

www.profoto.com/offcameraflash
Specifications are subject to change without notice. 15-1.
First page photo: Yervant

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STUDIO LIGHTING
NOT JUST FOR INTERIOR USE, DESPITE THE NAME

By Buyers' Guide Staff

This category of equipment is of a different scale: larger in capacity, bigger in size and weight, and more expensive than more common camera accessories. If your income depends on getting the shot, these tools may be in your future.

ELINCHROM EL-SKYPORT PLUS HS

This new wireless flash controller's Hi-Sync feature takes you beyond the normal X-sync speed of your Canon or Nikon SLR, up to 1/8000 s. The unit's LCD allows you to see every light in your setup and control the power levels and modelling lights from the device. It supports four groups and 20 channels and is compatible with previous SkyPort models. Estimated working range is 200 m outdoors, 60 m indoors. Firmware can be updated via a micro-USB port.

$319 (STREET) **GNIGAMI.CA**

ELINCHROM QUADRA ELB 400 TO GO KIT

This two-head kit from Elinchrom is part of the new ELB 400 line. It comes with two Quadra Pro light heads rated at 424 ws each, one ELB400 battery pack with one spare Li-Ion battery and charger, and a Skyport four-group 20-channel wireless transceiver. The Quadra Pro head is intended for on-location use, weighs just 280 g and comes with an LED modelling light. A kit based on the Quadra Action high-speed head is also available for $200 more. The battery pack weighs 2 kg with battery and is good for 350 full-power flashes. A sync cord is also included and a hard-sided case is part of the kit.

$3100 (STREET) **GNIGAMI.CA**

ELINCHROM LITEMOTIV INDIRECT OCTA 190 CM

You can tell your pop-up flash friends to go big or go home as you haul out the newest Octa, the Litemotiv Indirect. With a 190 cm diameter and inner and outer diffusers you'll need serious power to light this one up, such as an Elinchrom Quadra or Profoto (adapter rings available for both). Despite the large diameter these are designed for on-location use too. They fold down to a transportable size, and come with a carrying bag.

$1700 (STREET) **GNIGAMI.CA**

KUPO MASTER SERIES C-STAND WITH TURTLE BASE

C-stands are heavy, a consequence of being extremely robust. Kupo stands come in two sizes defined by the length of the riser (the pole part). The shorter 50-cm (20-inch) three-section model will extend to a couple of metres. The riser sections are made from a zinc alloy that is five-times stronger than aluminum, says Kupo. The turtle base has a few useful characteristics. The riser can be removed and the base folds flat. Because the legs have no cross-struts, you can place the stands very close together. And the horizontal section of the leg makes it easy to sandbag the base to keep the stand from toppling. Manfrotto also makes C-stands under the Avenger brand.

FROM **$150** **GNIGAMI.CA**

MANFROTTO STILL LIFE TABLE, MINI STILL LIFE TABLE

If you do a lot of small product photography, a shooting table or sweep can be an indispensible tool for ensuring consistent lighting from product to product. On these Manfrotto models the curved panel is made of a translucent acrylic (Perspex) and the tilting back can be adjusted, as can the legs. There are no cross bars to cast shadows that would ruin the "floating in space" look when the sweep is backlit. The mini version will hold products weighing as much 10 kg. The size of the translucent panel is 78 cm wide by 150 cm long. The standard model, with a panel size of 122 x 200 mm, has a capacity of 15 kg and allows more adjustments to the table.

$700, MINI; **$1100,** STANDARD (STREET) **MANFROTTO.CA**

PHOTTIX INDRA 500 TTL STUDIO LIGHT AND BATTERY PACK

The Phottix Indra500 TTL Studio Light is rated at an impressive 500 ws output. It includes a built-in Odin TTL receiver that works with Canon and Nikon SLRs for wireless flash triggering. Output is adjustable from full to 1/128 power. This kit includes a Li-Ion battery pack (and charger) with enough capacity for 360 full-power flashes. Also included are a seven-inch reflector, 3.5 m studio cable, battery pack shoulder strap and a carrying bag. The company announced the Indra360 that has many of the features of the Indra500 but with a lower rating of 360 ws and more compact Indra360 battery pack.

$1600 (STREET) **GENTEC-INTL.COM**

PROFOTO AIR REMOTE TTL

For use with Profoto's B1 or new B2 off-camera flash heads, the Air Remote TTL is a wireless RF flash trigger that sits on you SLR's hot shoe. It will work in TTL mode but you can also use a Hybrid mode, which lets you switch from TTL to Manual mode but retain the TTL settings. The Air Remote TTL is available for Canon (TTL-C) and Nikon (TTL-N) SLRs.

$580 (STREET) **PROFOTO.COM/CA**

PROFOTO B2 250 AIRTTL TO-GO KIT

The Profoto B2 system is aimed at photographers that are used to working with off-camera flash units but need the extra power of studio strobes. The B2 light head is small enough to be mounted on a camera flash bracket, but has up to five times the light output of a typical hot-shoe flash unit. The B2 250 AirTTL is battery pack is small enough to be carried on your hip or shoulder. The kit includes one each of a B2 light head, B2 250 AirTTL To-Go battery pack, rechargeable battery, charger along with small and larger carrying bags. Separate B2 heads are available for around $950.

$2660 (LIST) **PROFOTO.COM/CA**

PROFOTO OCF LIGHT SHAPING TOOLS

To complement the new B2 or existing B1 off-camera flash head systems, Profoto has introduced a line of light modifiers called the OCF Light Shaping Tools. These are simpler to use, and smaller and lighter than standard modifiers. Included in the new line are soft boxes (four models), a grid kit with three sizes of grid mesh, a snoot and a barn door.

$90 AND UP (STREET) **PROFOTO.COM/CA**

WESTCOTT SPIDERLITE TD6 2 LIGHT KIT

While LEDs get all the attention these days, don't forget that other kind of cool, continuous light: the daylight-balanced compact fluorescent. That's the technology in the SpiderLite kit, which combines two six-bulb TD6 heads with built-in speed-ring adapters, 12 50-watt daylight-balanced compact fluorescent bulbs, shallow-style 30 x 90 cm strip light and 100 x 120 cm softbox and stand brackets. Each head puts out the equivalent of a 1200-watt incandescent. Three switches let you control light output but turning on two, four or all six bulbs.

$1575 (STREET) **FJWESTCOTT.COM**

photo republik

BUYERS GUIDE

TOP RATED MUST HAVE ACCESSORIES

PhotoRepublik Micro Focus Rail Dual Axis
A focus rail system designed for quick and precise adjustment of your camera.
Perfect for quick and clean focusing during macro photography.

PhotoRepublik Mount Adapters
Want to make your camera system even more flexible? The PhotoRepublik Mount Adapters allows you to take advatage of whatever glass you have or to try something new.

PhotoRepublik 32" 5 in 1 Reflector Kit
With a simple twist, this reflector will fold to one-third its open size which makes it small enough to carry with you while shooting and comes supplied with a zip carrying pouch.The black provides isolation of your subject to make it stand out more. Will remove colourcast without adding fill light.

PhotoRepublik 33" Reversible Umbrella
provides a soft but still direct light, perfect for portrait and beauty shots.

PhotoRepublik Slider
This lightweight slider is ideal for small SLR, and video cameras allowing smooth movement through its ball bearing slider. This allows photographers, and videographers of all experience levels the ability to make creative, smooth transitions.
Available in 60cm, 80cm, and 100cm lengths.

CAMERA BAGS
THE LATEST IN THE MOST BASIC OF ACCESSORIES

By David Tanaka

What matters most to you in a camera bag? The practical side of you might cite capacity and protection. The ergonomic you would hail comfort and accessibility. The fiscal you, value. Your gregarious side might want some fashion pizzazz. No problem—all wish lists can be accommodated. Bags are designed for specific environments. Messenger bags are for an urban lifestyle that might include walking through crowds, after work socializing and commuting via public transportation. Backpacks are designed for walking with hands free, often through outdoors terrain. Better ones incorporate the same features as wilderness backpacks, such as hydration systems and separate frames. Many slim shoulder bags meet the size requirements for cabin luggage. Likewise, many larger transports are just small enough to qualify as a carry-on bag, but have luggage-like features such as wheels to whisk through terminals.

SHOULDER/MESSENGER BAGS

DOMKE F-803 CAMERA SATCHEL

The F-803 is the smallest of Domke's satchels but is nonetheless big enough for a pro-size SLR and few lenses and other accessory gear. The material is a waxed cotton canvas the company calls Waxwear, which will hold back the elements but remains breathable. It comes with one insert/divider but you can buy others. There's a particularly effective non-slip application on the strap.

$220 (STREET) **TIFFEN.COM**

KELLY MOORE ESTER

Like other Kelly Moore bags, the Ester has the convincing look of fine leather, but is actually made of a water-resistant synthetic. This lady's handbag will carry a full size SLR and up to a 10-inch long lens, plus a 13-inch notebook computer.

$270 (STREET) **KELLYMOOREBAG.COM**

LOWEPRO PROTACTIC SH 200 AW

One of four new bags introduced in the ProTactic line, this one is aimed at the working on-the-go photog. It will hold a full-size SLR with 70-200 mm lens and a few other lenses or flash units. It will also accommodate a 13-inch notebook computer and other accessories like a tablet, smartphone, etc.

$199 (LIST) **DAYMEN.CA**

ONA NYLON BRIXTON

If you like the Brixton but don't care for the fussiness of leather or canvas, how about one in nylon? It's not totally utilitarian—it retains the subdued finery of leather trim and brass hardware. Like the other Brixtons the nylon version will hold an SLR, two to three lenses or other accessories and a 13-inch notebook computer.

$389 (LIST) **ONABAGS.COM**

ROOTS STORM SLR SYSTEM

Wave the Canadian flag with this messenger-style SLR system bag that's big enough for an SLR with a telephoto lens attached, plus other other lenses, flash units, etc. It has a separate padded slot for a netbook or standard tablet and lots of separate pockets outside the main cavity for smaller items.

$90 (STREET) **GENTEC-INTL.COM**

TENBA TOOL BOX 8

As photographers bring more and different kinds of electronics with them, a different bag is in order. That's what the Tool Box is all about. Conceived as case for action cam users, it has a lot of small, shallow partitions, which also makes it useful for keeping any kind of small accessories, cables and what-have-you organized and quickly accessible in the field.

$60 (STREET) **GNIGAMI.CA**

TRANSPORTS

ONA HAMILTON ROLLING BAG + DUFFLE

Rolling case meets duffle bag in this unusual mash-up from ONA. The main body has a padded and removable camera insert, but the top incorporates a duffle bag compartment where you can store your personal items and clothing. The bonus is that it's small enough for to qualify as carry-on with most airlines.

$809 (LIST) **ONABAGS.COM**

THINKTANK AIRPORT TAKE-OFF

ThinkTank has several models in its Airport line. The Take-Off has a bit less capacity to the similarly sized Airport International V2.0 in order to include straps that allow it to be used as a backpack. It will hold up to a 400-mm telephoto a couple of camera bodies as well as a 15-inch notebook computer, but is small enough to qualify as carry-on with most airlines.

$400 (EST) **NADEL.CA**

BACKPACKS AND SLINGS

LOWEPRO PROTACTIC BP250

The BP 250 is one of four new models Lowepro has introduced in its ProTactic line and the only backpack (the others are shoulder bags). This one is large enough for a compact-system camera with standard lens, a few other lenses and accessories like a flash unit, plus an 11-inch thin computer like the MacBook Air and personal items.

$219 (LIST) **DAYMEN.CA**

MANFROTTO OFF ROAD HIKER 20L

The Off road Hiker 20L joins the larger 30L. As the name suggests this is a backpack designed for hiker-photographers. The side access zipper gives access to your camera, and the inner camera case, big enough for a medium-size SLR and a lens or two, is removable. An outer strap holds a camera close to your chest so it doesn't bounce around. If you remove the camera case and internal divider you can use the backpack purely for hiking.

$160 (STREET) **MANFROTTO.CA**

MINDSHIFT FIRSTLIGHT 40L

Mindshift says that what distinguishes the FirstLight series is that they are first and foremost backpacks, designed for comfort over extended periods of trekking. They have 11 points of adjustment on the harness and include a separate cavity for a hydration system. They are of course camera cases too, and the 40L's interior dividers can be adjusted to accommodate an SLR with 500-mm f/4 lens attached. The backpack is also small enough to qualify for carry-on with most airlines.

$350 (EST) **NADEL.CA**

ONA NYLON CAMPS BAY BACKPACK

This nylon version is the latest addition to the Camps Bay line. The bag is nicely proportioned with more tailoring than you expect from a backpack. However, it's big enough for an SLR with 70-200 mm lens and other lenses, plus a 17-inch notebook computer. A removable divider creates a space at the top of the bag for small personal items.

$569 (LIST) **ONABAGS.COM**

STRAPS AND HOLSTERS

BLACK RAPID CURVE RS-7

The RS-7 is designed with a curved shape to better fit around your shoulder. A swivelling carabineer glides smoothly up the strap, connected to the camera by a D-ring called the FastenR that screws into the camera tripod socket. The design allows you to quickly bring the camera up to your eye without the strap binding or offering resistance.

$90 (STREET) **GENTEC-INTL.COM**

COTTON CARRIER ENDEAVOR BELT SYSTEM

This new design from Cotton Carrier integrates a small pouch to hold personal items (wallet, keys, phone, etc.) and a shoulder strap with sliding safety tether. The Endeavor uses Cotton Carrier's camera hub holster system integrated into a new belt design and will carry one SLR or CSC camera. Two sizes are available for up to 44-inch and up to 61-inch waist sizes.

$100 (STREET) **COTTONCARRIER.COM**

SPIDER BLACK WIDOW HOLSTER

This device is small enough to pack in any carry bag, but when slipped into your belt, forms a hands-free way to carry your camera. It uses the company's Black Widow Pin connector system, which securely locks the camera into the holster but allows the camera to swivel as your body moves in different positions.

$110 (STREET) **GENTEC-INTL.COM**

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TRIPODS AND SUPPORTS
WANT SHARPER PICTURES? STEADY YOUR CAMERA!

By David Tanaka

Consider the broadening range of activities we photographers can approach. Night-sky, time-lapse and stop-motion photography have pockets of new fans. Affordable 150-600 mm telephoto zooms put more of us into the super-telephoto game. Video now means just pushing a different button on the camera you already have. In all the above a steady camera is highly desirable if not essential. Add to that the well-travelled mainstream categories for which tripods were always recommended—including landscapes and wildlife—and the case for using a tripod remains solid. But what should you look for? Here are some decision points to consider.

Head design: Quick-release heads are now common but tend to be proprietary so don't expect the plate from one manufacturer to fit on the head of another. One exception is the system developed by Arca-Swiss. It has been adopted by a number of manufacturers, so you can mix and match parts from different suppliers. Specialized items like gimbal heads and L-brackets mostly conform to the Arca-Swiss design.

Number of leg sections: The more sections, the shorter the collapsed length can be. The trade-offs: smaller-diameter sections and more joints mean more potential flex points.

Cam levers vs. twist rings: There are advocates for both and the selection for both types of leg lock is good, allowing you to choose whichever system you prefer.

Materials: Carbon-fibre tripods weigh less. Expect 300 g to 500 g in weight reduction over aluminum ones of equal capacity. Meanwhile, expect to pay around $200 more for carbon fibre. Wood is unusual now and only Berlebach makes tripods (and monopods) commercially from wood. Advocates of wood and carbon fibre point to other beneficial characteristics, such as better vibration dampening and more comfortable handling in very cold weather.

Overall size: At one time small either meant flimsy or premium priced. With the rise of smaller enthusiast-oriented cameras, the selection of smaller tripods with good performance has improved.

TRAVEL TRIPODS

GITZO TRAVELER SERIES 0

Gitzo's refreshed Traveler line still has the signature (and often-copied) 180-degree leg hinges that allow the legs to fold completely upward sheathing the centre column and head, which reduces carrying length. The Traveler uses a new formulation of carbon fibre the company calls Carbon eXact, which is stiffer than the material used on previous Travelers. New to the line is a smaller Series 0 available with or without a head.

MAX HEIGHT: **122.5 CM (CENTRE COLUMN EXTENDED)** // CLOSED LENGTH: **36.5 CM** // SECTIONS: **4**
LEG LOCK: **RING** // WEIGHT: **0.9 KG** // LOAD CAPACITY: **10 KG**

$749 (LIST) **GITZO.CA**

MANFROTTO BEFREE CARBON FIBRE

This is Manfrotto's take on the travel tripod, light and small, yet capable. The carbon-fibre model costs around $150 more and at 1.1 kg, weighs around 300 g (or roughly 20 percent) less than the aluminum BeFree models. The BeFree is designed with a rapid-type centre column, and includes a ball head with quick-release plate. A carrying bag is also included.

MAX HEIGHT: **142 CM** // CLOSED LENGTH: **40 CM** // SECTIONS: **4** // LEG LOCK: **LEVER** // WEIGHT: **1.1 KG**
LOAD CAPACITY: **4 KG**

$399 (LIST) **MANFROTTO.CA**

SLIK 340DX

Slik has been in the tripod business for decades and its formula of good bang for the buck has helped ensure it longevity. The 340DX is made from a company-developed alloy called A.M.T. (Aluminum-Magnesium-Titanium) that has a 40 percent better strength-to-weight ratio that straight aluminum, according to Slik. This is a travel tripod suitable for smaller cameras like a performance compact or CSC. It comes with a three-way pan head.

MAX HEIGHT: **147 CM** // CLOSED LENGTH: **49 CM** // SECTIONS: **4** // LEG LOCK: **LEVER** // WEIGHT: **1.6 KG**
LOAD CAPACITY: **4 KG**

$130 (STREET) **DAYMEN.CA**

STANDARD TRIPODS

GITZO SERIES 2 EXPLORER

Among tripod brands, Gitzo has the cachet and the performance chops to back it up. These are simple, understated and efficient—you won't find one in hot pink, for example. The Explorer has a novel centre column design that rotates and tilts, which allows you to position the camera in unusual orientations or place it in tight spaces. Gitzo calls its twist-ring leg-lock system G-Lock and also included is a column-locking system called Power Disc that uses separate locking screws for the column and head.

MAX HEIGHT: **170 CM** // CLOSED LENGTH: **64 CM** // SECTIONS: **3** // LEG LOCK: **RING** // WEIGHT: **1.8 KG**
LOAD CAPACITY: **12 KG**

$749 (LIST) **GITZO.CA**

JOBU ALGONQUIN TCF-36

If you want to wave the flag, consider the Jobu Algonquin, which according to Jobu Design is designed, manufactured, and assembled in Canada. This is a robust, tall tripod with impressive specs. The company says its carbon-fibre tubes use no filler or cosmetic layers so are stronger. The unit extends to 157 cm and can hold 25 kg, but weighs just 1.9 kg. It has a top platform of machined aluminum and the head connects directly to it for extra rigidity (no centre column).

MAX HEIGHT: **157 CM** // CLOSED LENGTH: **68 CM** // SECTIONS: **3** // LEG LOCK: **RING** // WEIGHT: **1.9 KG**
LOAD CAPACITY: **25 KG**

$799 (LIST) **JOBU-DESIGN.COM**

MANFROTTO COMPACT ADVANCED

The Compact series is aimed at first time photographers, and comes with a tripod head. Three models are available: Light, Action and Advanced. The Advanced model featured here includes a three-way head with pan arms, making it suitable for stills or video. A padded bag is included.

MAX HEIGHT: **165 CM** // CLOSED LENGTH: **44.5 CM** // SECTIONS: **5** // LEG LOCK: **LEVER** // WEIGHT: **1.5 KG**
LOAD CAPACITY: **3 KG**

$149 (LIST) **MANFROTTO.CA**

VELBON POLE POD II

This unusual design consolidates two kinds of supports—a four-section monopod and a two-section mini tripod. You can use either by itself, or combine them into a monopod that stands on its own. Included is a ball head that can be used on either the monopod or the tabletop tripod.

MAX HEIGHT: **179 CM** // CLOSED LENGTH: **68 CM** // SECTIONS: **4 ON MONOPOD, 2 ON TRIPOD**
LEG LOCK: **RING** // WEIGHT: **0.9 KG** // LOAD CAPACITY: **2.5 KG**

$250 (STREET) **NADEL.CA**

HEADS AND OTHER MOUNTS

BENRO GH2

This is the smaller of two Benro GH gimbal heads. Consider a gimbal head if you need to adjust tilt and pan simultaneously—for birds in flight, for example. The Arca-compatible platform on the tilt arm can be raised or lowered so that the pivot point matches the centre of the lens and the long plate allows adjustments to camera position for balance Two knurled knobs lock pan and tilt positions independently.

$480 (STREET) **GNIGAMI.CA**

GITZO GH1382QD

The GH1382QD is the middle child in Gitzo's trio of new centre-ball heads, sized for Traveler Series 2, and Mountaineer Series 0 and Series 1 tripods. The ball coating is of an ultra-smooth and low-friction material called tungsten disulphide (WS2). As well as a ball lock, the heads have a separate pan lock. The quick-release system is now compatible with Arca-type plates.

$439 (LIST) **GITZO.CA**

JOBU JR.3 GIMBAL HEAD

Jobu Design is a Canadian firm that makes a number of Arca-compatible tripod accessories including gimbal heads of various sizes. The Jr. 3 is the smallest, and has a weight capacity of 5.4 kg. The pivot arm that holds the lens can be adjusted up or down to better align the vertical rotation point with the centre axis of the lens.

$420 (STREET) **JOBU-DESIGN.COM**

JOBY ACTION CLAMP AND LOCKING ARM

Joining Joby's signature GorillaPod family of ball-and-socket tripods is the Action Clamp line, designed for GoPro and other action cameras. The Action Clamp is ball-jointed at both ends, and with the clamp you can attach an action cam to a wide variety of objects and swivel the camera into a wide range of orientations.

$40 (STREET) **DAYMEN.CA**

MANFROTTO PIXI EVO

The Evo is the latest Pixi mini tripod, with a larger capacity than before. It has two-section legs with five steps of length adjustment and two adjustment angles to provide stability on a variety on uneven and non-level surfaces. The integrated ball head has a 90-degree stop to allow easier camera positioning in portrait orientation. Although this is not for pro-size gear, it will accommodate a camera body of 750 g and a zoom lens. Maximum recommended load is 2.5 kg.

$80 (STREET) **MANFROTTO.CA**

UNIQBALL UBH

Winner of the 2015 TIPA Best Accessory Award, UniqBall combines the features of a number of head designs. The secret sauce in the design is dual ball surfaces, one nested into the other. The outer ball can be used as a conventional ball head or as a levelling base for the inner ball. Uniqball is available in three sizes but even the smallest UBH X35 has a load rating of 15 kg.

$399, UBH X35 (STREET) **REDRAVENPHOTO.COM**

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By Buyers' Guide Staff

KIT ENRICHMENT

LENSPEN DSLR PRO CLEANING KIT

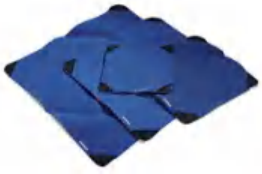
This kit combines three variations of the company's namesake LensPen, a pen-shaped tool that combines a brush on one end and a pad made of a special oil-removing carbon compound on the other. Included are the original LensPen for SLR lenses, a FilterKlear variation for filters and the MicroPro suitable for cleaning viewfinders. Included is a microfiber carrying bag that doubles as a cleaning cloth.

$30 (STREET) **GENTEC-INTL.COM**

LOWEPRO PHOTOGRAPHER'S GLOVES

Available in small, medium and large, these gloves are made of a blend of polyester and Thermax/Lycra. They are thin but warm. The contact surfaces for fingers and palm are covered in grippy dots to make it easier to securely hold objects and to manipulate small controls.

$35 (STREET) **DAYMEN.CA**



NOVOFLEX BLUE WRAPS

Made of stretchy neoprene with hook and loop on the corners for closure, these protective wraps can be used to cover a variety of shapes, from a smartphone to a battery grip to a focusing rail. The inherent sponginess of neoprene gives shock protection and the hook and loop fasteners accommodate a range of sizes and shapes.

$40 - **$80** (STREET) **REDRAVENPHOTO.COM**

ROSCO GRAFTAC GAFFER TAPE 48 MM X 50 M

Two properties have made gaffer (or gaffer's) tape a must-have on movie and theatre sets. It is made from fabric, often cotton, which is tough, non-stretchy but can be torn by hand. The adhesive is rubber based, which is more heat resistant and allows the tape to be removed without leaving a residue or damaging the surface it was adhered to. Gaffer tape is available in many colours and widths from several manufacturers.

$25 (STREET) **ROSCO.COM**

WAKAWAKA BASE 5

The WakaWaka Base 5 is a portable solar-powered charging kit. It consists of a 7.5-watt fold-up solar charger, 5000-mAh battery pack, two LED lights, cables and a carry bag. The maker claims the charger will charge the battery pack in 4 to 8 hours in full sun, and the battery pack has enough capacity to recharge the average smartphone twice.

$159 (LIST) **NADEL.CA**

SENSOR SWAB ULTRA

SensorSwab's ULTRA line brings a new blend to the cleaning pad material, which the company says is "super" absorbent. The flexible handle has also been redesigned for better control, and the pad and handle are fused together. As before, there are sizes to match different sensor dimensions, so you need to pick the one that fits your camera.

$50, FOR BOX OF 12 (STREET) **PHOTOSOL.COM**

LENS ASSIST

LEE SEVEN5 FILTER SYSTEM

Lee, well known for its professional filter holder system based around 100-mm filter inserts, has introduced a smaller system for CSC users. The Seven5 is a holder that takes Lee's 75 x 90 mm filters. Adapter rings range from 37-mm to 72-mm thread diameter.

$150, FOR BASIC HOLDER (STREET) **LEEFILTERS.COM**

HOYA FUSION ANTISTATIC CIRCULAR POLARIZER

Polarizing filters are useful in a variety of situations. They can reduce reflections from water and window glass, and make colours look more saturated. Hoya's Fusion line includes a hardened antistatic coating on the top surface that repels dust and water while making it easier to remove smudges. These multicoated filters are mounted in low-profile aluminum frames.

$90 - **$200,** FROM 37 MM TO 82 MM (STREET) **DAYMEN.CA**

LOMOGRAPHY EXPERIMENTAL LENS KIT

This three-lens kit is for Micro Four Thirds cameras. It includes three plastic lenses: fisheye, wide-angle and normal focal length. Each of the lenses has a filter slot so you can play with different colours, adding another dimension to the images from these unusual experimental lenses. Lomography has a number of products including a Diana F+ SLR adapter that allows you to mount Diana F+ lenses on your SLR (Canon and Nikon adapters available).

$90 (STREET) **LOMOGRAPHY.COM**

METABONES SPEED BOOSTER ULTRA M43

The Speed Booster Ultra is a focal-length-reducing adapter. Huh? Yes, with a magnification of 0.71x the Metabones Speed Booster Ultra reduces the crop factor of Micro Four Thirds from 2x to 1.42x, while improving the effective maximum aperture. Unlike passive adapters the Speed Booster Ultra is a reducing lens with an optical formula that includes five elements in four groups. The MFT version joins the Sony E-mount adapter introduced a couple of years ago.

$600, NIKON; **$800,** CANON (STREET) **METABONES.COM**

BOKEH MASTERS

The circular lens iris is what gives the out-of-focus lights in a photograph their characteristic appearance—their bokeh. Change the shape and you change the bokeh. The Bokeh Masters kit is made up a holder and a set of thin disks with a variety of shapes laser-cut out of the centre. When mounted in front of a lens, the out-of-focus lights take on the shape of whatever is cut out of the disk, be they hearts, stars, icons or symbols.

$60 (STREET) **REDRAVENPHOTO.COM**

TECH

MANFROTTO DIGITAL DIRECTOR

The Digital Director is tethered shooting solution with its own ARM Cortex-8 processor and firmware. Two versions are available—for the iPad Air and the iPad Air 2. Both work with Nikon and Canon SLRs. The cradle holds and connects the iPad to the onboard Lightning connector. A USB cable connects the Digital Director to the SLR, and once the connections are made, the camera can be controlled from the iPad screen via the Digital Director App.

$649 (LIST) **GENTEC-INTL.COM**

MAKERBOT REPLICATOR MINI 3D PRINTER
DREMEL 3D20-01 IDEA BUILDER 3D PRINTER

The collision of 3D printers and photography has created some pretty interesting projects, from 3D selfie sculptures to wedding-cake toppers in the likeness of the bride and groom. If you're interesting in exploring this new field, hardware prices are coming down. Makerbot's Replicator Mini 3D Printer and Dremel's 3D20-01 Idea Builder are reasonably affordable and will produce coffee mug-size objects.

$1250, MAKERBOT (STREET) — **MAKERBOT.COM**
$1700, DREMEL (STREET) — **3DPRINTER.DREMEL.COM**

TETHER TOOLS AEROTAB

Tethering allows us to use tablets, with their larger screens, for live-view focusing, composing and even adjusting camera settings. Tether Tools' latest product is the Aero Tab, a universal tablet holder. The Aero Tab uses industry standards like 1/4-inch and 3/8-inch tripod threading and Arca-type quick-release system, allowing it to work with existing camera supports like light-stand spigots, extension arms or tripods. Two sizes are available (measure the diagonal of your tablet for the correct model) with two variations for each.

US$130 - **US$150** (STREET) — **TETHERTOOLS.COM**

LEXAR PROFESSIONAL 1000X UHS-II SDXC CARD

When it comes to SD cards UHS-II U3 (UHS Speed Class 3) currently sits at the top of the speed ranks. This 1000x card from Lexar offers a read speed of up to 150 megabytes per second. Still photographers don't often need really fast data speeds, but if you intend to shoot video, especially high bit rate 1080p or 4K, this is the type of card that will handle the high data rate.

$50 - **$140,** FOR 32 GB-128 GB (STREET) — **LEXAR.COM**

SANDISK EXTREME PRO COMPACTFLASH

CompactFlash used to be the speed champ but UDMA-7, the fastest design spec, is capped at around 167 megabytes per second, a data rate that the latest SD cards have surpassed. Still, CF cards are built into most advanced SLRs, and the SanDisk Extreme PRO cards, rated at 160 MB/s, are capable of handling the load, plus they offer a sustained write speed of 65 MB/s which is more than enough for Full HD video recording.

$100 - **$200,** FOR 16 GB-64 GB (STREET) — **GENTEC-INTL.COM**

VIDEO

ATOMOS NINJA ASSASSIN

The newest member of the Ninja line of field recorders handles 4K UHD and 1080 60p video. Designed for any SLR or CSC with HDMI-out the Ninja Assassin will record to Apple ProRes or Avid DNxHR format. The unit supports up to eight channels of audio over HDMI, and a 3.5-mm input accepts analogue audio input from a microphone or mixer. The built-in monitor has a 7-inch screen with resolution of 1920 x 1080 that can be used for video- and audio-signal monitoring.

$1740 (STREET) — **ATOMOS.COM**

KAMERAR SLIDER DOLLY SD1-MKII

This video accessory allows you to perform a number of moving camera effects. Its improved low-friction camera plate runs along a 38-cm rail, and the camera can be positioned in any direction horizontally (if you add a ball head, you can get vertical tilt too). The rail can be mounted on a tripod and connectors at each end take counterweights or a pulley system. The SD1 ML II also comes with a set of roller blade-style wheels. Each pair of wheels is mounted on an 18 cm wide axle, and the axles can be turned individually so you can set a variety of radiuses with front wheels, rear wheels or both defining the curve.

$200 (STREET) — **KAMERAR.COM**

WESTCOTT ICE LIGHT 2

Westcott's Ice Light 2 bumps performance in several key areas. The company says at 1740 lumens, light output is 50 percent brighter than version 1. A new daylight-balanced LED array brings the colour-rendering index to CRI 96. The power supply produces flicker-free light, and it also features an 18-step flicker-free intensity controller. The stick-shaped unit weighs 570 g and will operate for about an hour on the built-in rechargeable batteries.

$780 (STREET) **FJWESTCOTT.COM**

ZOOM F8

If you take your video seriously you also take your audio seriously, and Zoom's new F8 is a very serious multi-track field recorder. It is relatively small and light (2.1 kg) but houses eight XLR inputs with +24V/+48V phantom power. It records 16-bit or 24-bit wav files at up to 192 kHz sampling, or MP3 at up to 320 kbps. It includes a mixer, and a free Bluetooth app (iOS only for now) is available that lets you control the unit from an iPhone or iPad.

$1250 (STREET) **OMNIMEDIA.CA**

WORKFLOW

EPSON PERFECTION V850 PRO

The 850 is the latest in a long line of Epson Perfection V-series flatbed scanners popular with photographers that want to bring their slides and negatives into digital workflow. The V850 scans at 6400 dpi and offers a 4.0 Dmax to maximize dynamic range. Included are Digital ICE scratch-removal software, SilverFast SE scanning software and X-Rite i1 colour-management software. The V850 supports wet scanning through an optional fluid mount tray.

$1139 (LIST) **EPSON.CA**

LACIE D2 USB 3.0

Lacie has a broad line of external drives, and is a popular choice among media producers. The d2 uses a fast 7200-rpm drive available in three and four-terabyte capacities. The Quadra model has multiple interfaces, making it a good transition drive for people with older computers using Firewire 800 or USB 2.0 because it also supports the latest USB 3.0. The d2 is fanless, and has a ribbed aluminum enclosure for heat dissipation.

$270 FOR 3-TB MODEL (STREET) **LACIE.COM**

SPYDER5 STUDIO

The Studio is a bundling of all you need to colour-manage your monitor, printer and even your camera. The Spyder5ELITE colorimeter adjusts monitors and projectors to an industry color reference standard. SpyderPRINT is a spectrocolorimeter that you use to create custom printer profiles. SpyderCUBE is a portable device you use to set a custom white balance for your camera on location. Hard-side case included.

$620 (STREET) **GENTEC-INTL.COM**

ZENFOLIO

One of the common laments of Canadian photographers using turnkey photo websites like Smugmug and Zenfolio is that e-commerce isn't ideal because the partner links are based outside of the Canada. Zenfolio recently changed that by offering services tuned to Canadian shoppers. The Canadian lab service Pikto can now be selected; pricing can be in Canadian dollars and your website can be localized for English- or French-speaking customers.

FROM **$7** PER MONTH (ONLINE) **ZENFOLIO.COM**

GEAR UP FOR VACATION/TRAVEL PHOTOGRAPHY

By Buyers' Guide Staff

Airlines are more aggressive in enforcing carry-on regulations but you can get sterling performance from a smaller system. Accessories (a flash unit, filters, a tripod) are smaller and lighter too, so carrying your gear around for extended periods will be less fatiguing. Compactness also pays dividends when you're pushing or being pushed through crowded areas.

Water and winter can be tough on gear, so a ruggedized camera is worth considering if your travel involves those conditions. Most camera makers offer fixed-lens models but the Nikon 1 AW1 has interchangeable lenses.

A small flash unit and travel tripod will be useful but some historic sites and museums don't allow photography at all, or none using a flash or tripod. Image stabilization in the camera or lens will prove helpful, as will good high-ISO performance and a lens with a large maximum aperture.

The activities you intend to do will influence what kind of bag works best. You don't have to go with the stereotypical camera-bag look. You can find dual-purpose bags that look like office satchels, women's handbags or ubiquitous daypacks, in styles from utilitarian to high fashion.

NIKON 1 AW1

The selection of small cameras with excellent image quality has never been better. The Nikon 1 AW1 is a good choice if you want a small interchangeable lens camera that isn't afraid of the elements. It's waterproof to 15 M, freeze-proof to -10 °C and drop rated for 2 M. Two rugged Nikon 1 lenses are available.

$850, WITH 11-27.5 MM ZOOM (STREET) **NIKON.CA**

TENBA BYOB AND PACKLITE

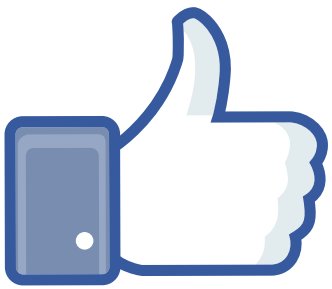
The BYOB is a padded case without an outer shell. The Packlite is a shell without inner structure that folds down to a compact size. The idea is this: pack a BYOB loaded with your gear and the tiny Packlite shell into one piece of carry-on luggage. At your destination, create a walkabout camera bag by putting the BYOB into the Packlite. They come in four matched sizes.

FROM **$70** (STREET) **GNIGAMI.CA**

MEFOTO BACKPACKER TRAVEL KIT

The five-section BackPacker Travel folds down to just 32 cm so you can actually carry it inside many bags. It weighs 1.2 kg and has a load capacity of 4 kg. Maximum height is 1.3 m (centre column up). The kit version comes with an Arca-type ball head and quick-release plate.

$220 (STREET) **GNIGAMI.CA**



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GEAR UP FOR STREET PHOTOGRAPHY

By Chad Sapieha

The most important elements of street photography are the shooter's instinct and eye. You need to be able to quickly intuit a good subject then get yourself into the proper position to capture it. However, even the best talents are for naught if you haven't the equipment to do the job. Here's all the gear you need to begin capturing the spontaneity and soul of the street.

THE CAMERA: FUJIFILM X100T

Wasting time fiddling with equipment is a surefire way to miss a fleeting moment. Your best bet on the street is a camera that's always at the ready yet provides flexibility when needed. Meet the Fujifilm X100T, a terrific performer with a fixed focal length 23 mm f/2 lens. It's great in any light, offers speedy 6-fps continuous shooting to give you options when selecting shots at the end of the day, and sports a built-in electronic viewfinder for better framing. Bonus: Its silent shutter helps you in your mission to be discreet.

$1500 (LIST) **FUJIFILM.CA**

THE LENSES: FUJIFILM WCL-X100, FUJIFILM TCL-X100

For a little extra situation adaptability you might want to consider the X100T's optional conversion lenses. The 28 mm WCL-X100 wide takes in more scene at shorter range, while the 50 mm TCL-X100 is handy in situations that demand a little reach. Both can be attached in less time than it takes to read this.

$350, WCL-X100; **$300,** TCL-X100 (LIST) **FUJIFILM.CA**

THE STRAP: 52-INCH STREET STRAP

Some of the best street photos are shot from the navel without the subject ever knowing via cameras hanging at the end of long, comfortable, and versatile straps—like the Street Strap. Its thin, soft, durable nylon braid is comfortable on the skin, makes it easy to adjust hang, and is much less noticeable than broader professional straps.

$65 (STREET) **STREETSTRAP.COM**

THE BAG: TENBA MINI MESSENGER BAG

You don't want to advertise that you're on the prowl for pictures, so your bag should be small and stealthy. Tenba's stylish Mini Messenger fits this description to a tee. It's big enough to fit a small camera plus a few lenses, flash, microphone, and perhaps a GorillaPod, but small and fashionable enough to pass as a standard commuter messenger. Pick from Olive, Burnt Orange, and Plum. Your subjects won't even see you coming.

$95 (STREET) **GNIGAMI.CA**

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GEAR UP FOR FAMILY PHOTOGRAPHY

By Buyers' Guide Staff

Being the family photographer involves the broadest spectrum of photographic activity: from sports to portraiture; indoors and out; night and day, involving people of all ages, working in familiar and unfamiliar places. The camera phone can be useful because wherever you take your phone you also take a camera. No more "I shoulda brought the camera."

But it's not the only tool that you'll want in your belt. A single-lens reflex or compact-system camera is a logical next step. From around $400 you'll find a good selection of SLRs and CSCs. These often come with a standard zoom lens that covers wide-angle to short-telephoto focal lengths, good for most situations. If you get a camera bag that can also service other activities—a messenger-style bag for work or a backpack or sling if you do a lot outdoors—you'll have the camera with you more often.

A system camera can grow as your needs change. If your child gets into sports, you can add a better zoom; to improve people pictures, an auxiliary flash. When the entry-level camera body starts feeling inadequate, you can move up but still use that better zoom lens or lighting system.

When managing your photos, think in decades or generations and keep an eye on the flow and ebb of technologies. Review your archives at least once each decade. If you are using storage technology whose days appear numbered, take the time to copy your archive to a new system.

Consider making some old-fashioned photo albums, or self-publish your own photography books. That way your kids can simply pull one off the shelf—to show their kids.

MANFROTTO ADVANCED ACTIVE II

A dual-purpose pack like the Manfrotto Advanced Active II has a separate compartment for camera gear but is big enough for other stuff including a 15-inch notebook computer.

$159 (LIST) **MANFROTTO.CA**

PHOTOBOOK CANADA

Photobook Canada is one of a number of photo-book publishing services that use pre-made templates to simplify page layout. Price varies with book design.

PHOTOBOOKCANADA.COM

WD OR SEAGATE PORTABLE HARD DRIVE

Backing up to a portable hard drive ensures that you won't lose your digital photos if something happens to your computer hard drive.

$100 AND UP (STREET) **WDC.COM** OR **SEAGATE.COM**

GEAR UP FOR SPORTS/ACTION PHOTOGRAPHY

By Buyers' Guide Staff

Sports means action. You need a fast shutter speed and fast autofocus that can maintain focus as players move, often erratically. A high burst rate will capture action sequences but you don't want to be constantly missing important moments while the camera processes images, so fast data processing and a big buffer should be on the checklist.

You'll want a viewfinder system that has little or no latency to keep up with the action. This rules out cameras with a slower or no electronic viewfinder. SLRs rule here, but a CSC with advanced EVF may be up to the task.

Events often take place indoors or at night. Your solutions are a fast lens (large maximum aperture) or a camera with good high-ISO performance; probably both. Action unfolds all over the playing field, so make that fast lens a zoom. Fast zooms cost more—the faster, the more expensive. Fast zooms tend to be heavy too, so you may want a monopod. It gives extra support while being manoeuvrable. To summarize:

- SLR or CSC with bright, responsive viewfinder, fast AF acquisition and accurate AF tracking; high burst mode (6+ frames per second with AF) can be useful.
- Lens: telephoto zoom with large maximum aperture. The 70-200 mm f/2.8 is a fixture in the pro ranks. A 70-200 mm f/4 will be lighter and less expensive, and is a viable alternative for many situations.
- A monopod is a good compromise between manoeuvrability and support. If you also want to record video, camera steadiness is important.
  And don't rule out action cams (see a full list of the latest models in the fixed-lens cameras section).

CANON 7D MARK II

The Canon EOS 7D Mark II has a lot on the sports-performance checklist: 10-fps burst mode, 65-point AF with advanced-tracking, high ISO and rugged magnesium-alloy body.

$1900 (STREET) **CANON.CA**

PENTAX FA* 70-200 MM F/2.8

Every SLR brand has a 70-200 mm f/2.8 lens; this one is Pentax's premium FA* model. These fast zooms are one of the must-have lenses for sports.

$2500 (STREET) **RICOH-IMAGING.CA**

GITZO TRAVELER MONOPOD

This new eXact model from Gitzo uses a new formulation of carbon fibre. It weighs just 405 g, but will support 12 kg.

$340 (STREET) **GITZO.CA**

GEAR UP FOR IMAGES IN THE ROUND

By David Tanaka

If you want the ultimate point-of-view images a spherical camera, also known as a 360-degree camera may be what you're after. Single spherical images create a similar experience to stitched VR images—you can zoom in or out and shift the viewpoint up, down, left or right. Watching 360-video is an immersive "you are there" experience. Using directional controls you can look up, down, frontward, backward or anything in between while the scene continuously flows in real time.

Many 360-sharing sites are popping up, while existing media-sharing services from Google to YouTube to Facebook are also on board. Google, for example supports it in Street View.

Ricoh was one of the first to introduce a standalone spherical camera and has released its second model, the Theta S. It has twin 12-megapixel sensors and twin f/2 lenses, a more capable image processor, faster Wi-Fi and Bulb mode for long-exposure 360-image creation. The Theta S can capture 14-megapixel spherical images and up to 25 minutes of spherical Full HD video while maintaining the previous m15's overall size. Ricoh has established a website (theta360.com) where you can post your latest creations, and also has a Theta app for your smartphone or tablet.

Kodak has spherical cameras but they aren't readily available in Canada. Action camera maker GoPro is there with the help of a number of third-party mount manufacturers. These mounts cluster a number of individual GoPro cameras into a spherical array.

Panono, a German company has announced a grapefruit-size model called the Panomo Explorer that houses 36 cameras with a total of 108 megapixels. You can throw the 11-cm ball into the air and the cameras take a full 360 x 360-degree panorama. Its product was set to go on sale in September and apps are being developed too. The Bublcam, from Bubl is another ball-shaped camera. It has four 5-megapixel cameras onboard and is scheduled to ship in December.

RICOH THETA S

The Theta S is Ricoh's second 360-degree camera. Its twin f/2 fisheye lenses are located front and back to capture full spherical images and video.

$449 (STREET) **RICOH-IMAGING.CA**

PANONO EXPLORER

Throw the grapefruit-size Panomo Explorer in the air and its 36 cameras record 360 x 360-degree spherical panoramas.

US$1499 (STREET) **PANONO.COM**

GEAR UP FOR LANDSCAPE PHOTOGRAPHY

By Buyers' Guide Staff

You can pursue landscape photography with the simplest equipment and travel no further than the street where you live. A few pieces of gear are worth considering.

TRIPOD AND REMOTE SHUTTER RELEASE

Landscape photography can involve looking for a precise arrangement of elements. A tripod will help you lock down that exact composition once you've found it. Or you may need a very slow shutter speed—advantage, tripod; advantage, remote shutter release.

NEUTRAL-DENSITY FILTERS

ND filters reduce the light coming to the sensor. They come in various strengths but a variable ND filter allows you adjust strength by rotating the filter ring. You use a slow shutter speed to compensate, and moving objects are recorded as blurs or not at all. A variation called the graduated ND filter blocks light to half the field.

LENSES

Any focal length will do, and you don't need a fast lens. But there are lenses at the extreme ranges that create certain kinds of landscapes. Ultra-wide angle lenses capture the vastness of a vista and convey the feeling of huge volume. Super-telephotos do just the opposite, flattening objects at various distances into unusual 2D juxtapositions.

THE MORE PIXELS, THE MERRIER

Landscape photography is one area where you can justify lots of pixels. But there's a qualification. If your landscapes are going to appear only on computer screens and TV monitors the current-best native resolution is around four megapixels. Your 24-megapixel photo would have to be downscaled a lot. Even the coming 4K monitors have a resolution that's just a bit better than 8 megapixels.

WIDE-FORMAT PRINTER

Landscape photography and big prints go hand in hand, and here's where those massive 24-megapixel files start earning their keep. Epson's P800 is an ANSI C printer small enough to conveniently use at home, but will print on 17 x 22 inch paper stock. To print a 22-inch wide image at native resolution the sweet spot is around 6500 pixels.

B+W VARIABLE NEUTRAL-DENSITY FILTER

Because variable ND relies on rotating elements, mechanical precision is as important as the optical qualities of the filter. B+W filters are expensive, but of very high quality.

$400 FOR 77 MM (STREET) **REDRAVENPHOTO.COM**

CANON EF 11-24 MM F/4 LENS

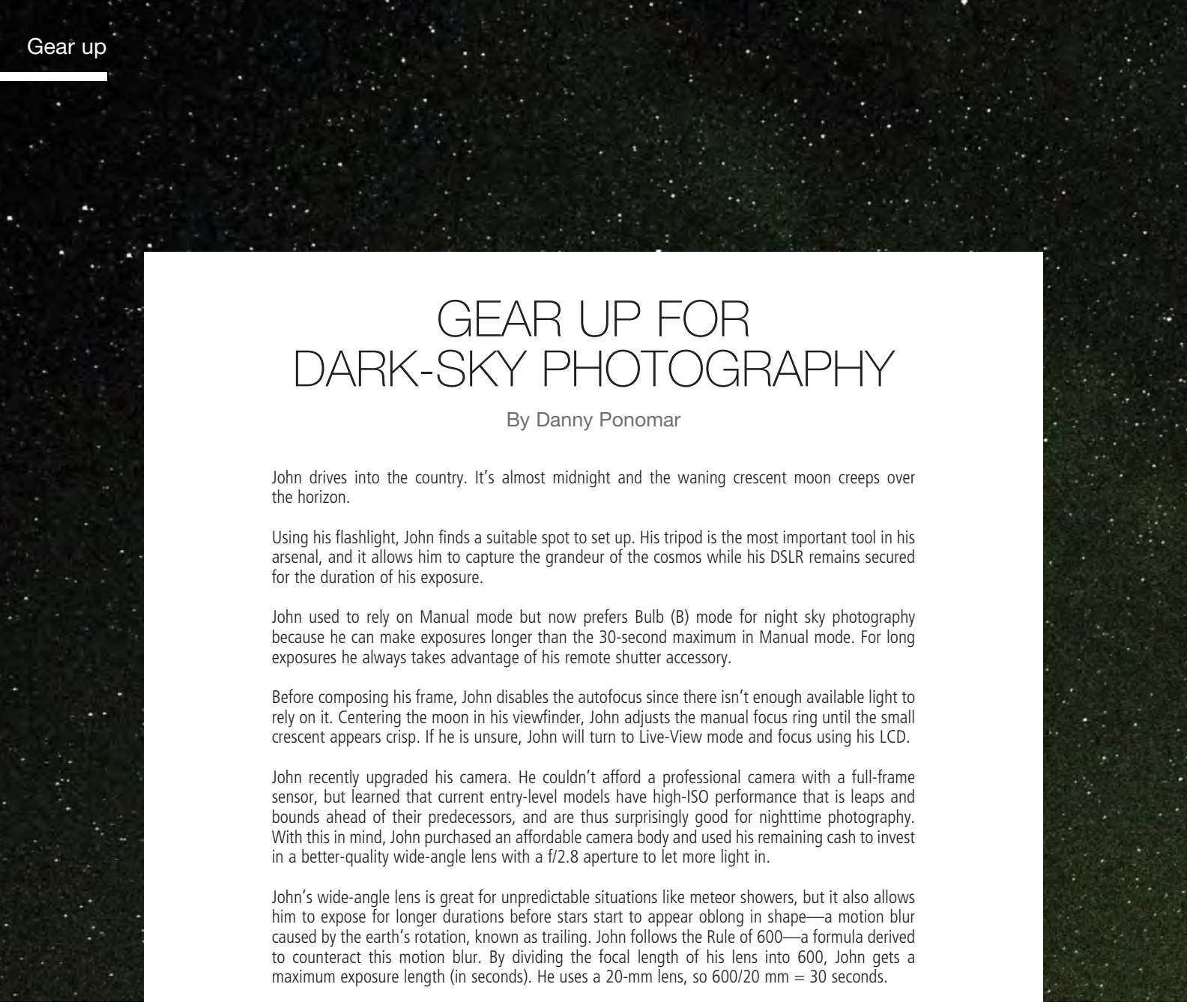
A focal length of 16 mm is considered extremely wide on full-frame systems, but Canon's EF 11-24 mm really opens up your vista.

$3500 (STREET) **CANON.CA**

EPSON P800 PRINTER

Landscape photos look terrific printed big, and Epson's new P800 let's you print on 17 x 22-inch paper stock or up to 17 x 120-inch panoramas.

$1550 (STREET) **EPSON.CA**



GEAR UP FOR DARK-SKY PHOTOGRAPHY

By Danny Ponomar

John drives into the country. It's almost midnight and the waning crescent moon creeps over the horizon.

Using his flashlight, John finds a suitable spot to set up. His tripod is the most important tool in his arsenal, and it allows him to capture the grandeur of the cosmos while his DSLR remains secured for the duration of his exposure.

John used to rely on Manual mode but now prefers Bulb (B) mode for night sky photography because he can make exposures longer than the 30-second maximum in Manual mode. For long exposures he always takes advantage of his remote shutter accessory.

Before composing his frame, John disables the autofocus since there isn't enough available light to rely on it. Centering the moon in his viewfinder, John adjusts the manual focus ring until the small crescent appears crisp. If he is unsure, John will turn to Live-View mode and focus using his LCD.

John recently upgraded his camera. He couldn't afford a professional camera with a full-frame sensor, but learned that current entry-level models have high-ISO performance that is leaps and bounds ahead of their predecessors, and are thus surprisingly good for nighttime photography. With this in mind, John purchased an affordable camera body and used his remaining cash to invest in a better-quality wide-angle lens with a f/2.8 aperture to let more light in.

John's wide-angle lens is great for unpredictable situations like meteor showers, but it also allows him to expose for longer durations before stars start to appear oblong in shape—a motion blur caused by the earth's rotation, known as trailing. John follows the Rule of 600—a formula derived to counteract this motion blur. By dividing the focal length of his lens into 600, John gets a maximum exposure length (in seconds). He uses a 20-mm lens, so 600/20 mm = 30 seconds.

Reaching for his shutter, John realizes that his ISO is set to 100. However, it's a particularly dark night, and he knows he won't be able to pull the detail he wants if he doesn't boost his ISO significantly.

With everything in order, John opens his shutter and exhales. All he can do now is wait.

TWO NIGHT-SKY SPECIALISTS

Nikon's astrophotography-oriented SLR, the D810a has an IR filter tuned to allow the H-Alpha light (wavelength 656 nm) of deep space to be recorded by the sensor. Some Canon SLRs (most recently the 60Da) do this too. The D810a also boosts maximum ISO to 12,800 (or 51,200 in H2 boost mode).

A star-tracking feature called Astrotracer is built into some Pentax SLRs. It uses the camera's sensor-shift circuit to precisely control the 2D position of the sensor, using information from an optional GPS unit to continuously adjust the sensor position to compensate for the earth's rotation. Astrotracer's five-minute limit is an impressive step forward in making long exposures without star trailing. The latest Pentax K3 II has built-in GPS, so Astrotracer can be set up right out of the box.

NIKON D810A

This special version of Nikon's 36-megapixel full-frame SLR has the IR filter tuned to record hydrogen-alpha radiation frequencies that give deep-space objects like nebulae the signature reddish glow.

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PENTAX K3-II

With built-in GPS and the Astrotracer setting, the K3-II will track stars for up to five minutes without creating star trails.

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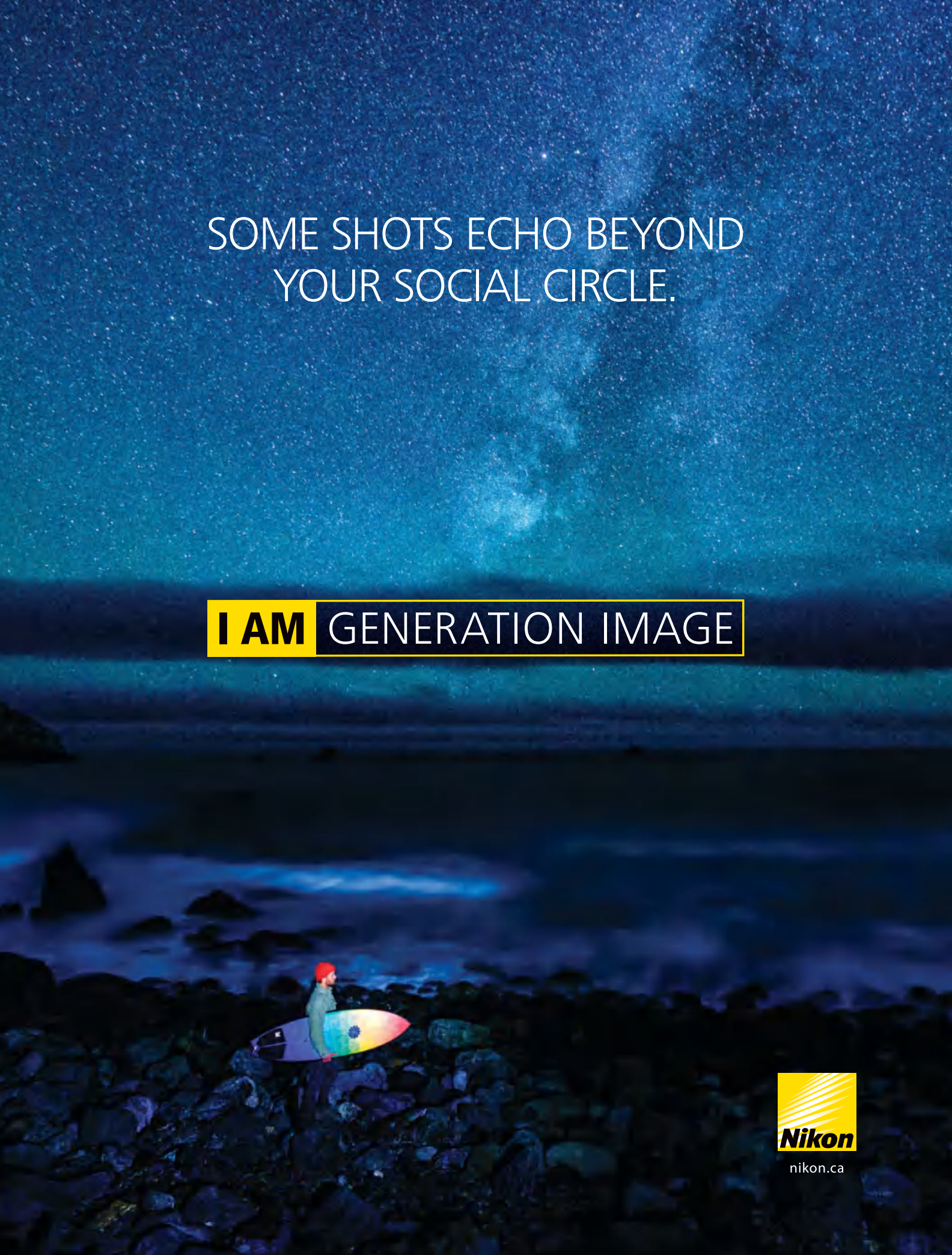
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